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HARBOR SEAL, *Phoca vitulina richardsi*, CENSUS IN CALIFORNIA, MAY-JUNE 1988

By

Doyle Hanan, John Scholl and Sandra Diamond

ADMINISTRATIVE REPORT LJ-89-13

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HARBOR SEAL, *PHOCA VITULINA RICHARDSI*, CENSUS IN CALIFORNIA, MAY-JUNE, 1988

by

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HARBOR SEAL, PHOCA VITULINA RICHARDSI, CENSUS IN CALIFORNIA, MAY-JUNE 1988

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INTRODUCTION AND METHODS

California Department of Fish and Game (CDFG) initiated a harbor seal, Phoca vitulina richardsi, census along the mainland California coast in 1981 as part of a cooperative marine mammal assessment program with the National Marine Fisheries Service/NOAA Fisheries (NMFS). The data gathered from the censuses are to be used for development of an annual index of abundance, which is used for detecting trends in population abundance and distribution. The first census was incomplete, but allowed refinement of techniques, which have been employed in the subsequent censuses. Those techniques and the results of the 1982 to 1987 censuses are reported in Miller et al. (1983) and Hanan et al. (1985, 1986a, 1986b, 1987, and 1988). This report presents results of the 1988 census, which employed previous survey techniques as closely as field conditions permitted.

The survey was flown at a 600-foot altitude in a Cessna 185[1]. The airplane was equipped with an optical glass photography port

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1. Use of brand names does not imply endorsement by CDFG or NOAA Fisheries

in the airplane floor, which enabled us to take nearly vertical pictures (less counting bias than oblique pictures) of the seals. The sites were photographed sequentially from south to north, taking advantage of the northward progression by time and location of the low tide. Since the tides progress northward faster than the survey plane, a section of the coast was surveyed each day by starting at the southern-most hauling site one hour before local low tide and surveying northward until an hour and a half after local low tide. Some sites were surveyed on consecutive days to assure adequate photographic coverage. The major bays and estuaries were surveyed during the high tide window of one hour before to an hour and a half after local low tide.

The survey team consisted of a pilot, data recorder, and photographer using a Hasselblad model 500-ELM camera with a 80-mm f2.8 lens and motordrive. Kodak 64 or 200 ASA Ektachrome film was used depending on lighting conditions determined by a Soligor II spotmeter. A Nikon 35-mm camera with motordrive and a 100-mm lens were taken as a backup camera system in case of Hasselblad malfunctions.

Counts of harbor seals were made by viewing rolls of developed film through dissecting microscopes. Each seal was counted by marking a thin plastic sheet laid over the photograph. Seals not easily identified as pups were counted as adults. Counts were recorded by hauling-site number and transferred later to a computer database.

Besides the aerial surveys, 39 hauling sites were surveyed by observers from the shore (ground counts). These observers counted seals each half hour or, if numbers were large, as frequently as conditions permitted. They counted, using binoculars or spotting scopes, from one hour before low tide to one hour and one half after low tide. For each day censused, the maximum count at each site was entered into the database. If the ground count exceeded the aerial count for a site, the ground count was used in the estimated mainland total (Appendix I).

The harbor seal census database includes both aerial and ground count information stored in a separate file for each year (Appendix II). The files were created using the database management program dBASE III Plus[2]. The files are maintained as individual records for each hauling site along the California coast. The records contain descriptive information about each site as well as the seal counts (Appendix III).

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2. A trademark of Ashton-Tate, 10150 W. Jefferson Blvd., Culver City, Ca 90230.

RESULTS and DISCUSSION

The mainland coast of California was surveyed on June 6-9, 1988. The total count was 14,355 seals, occupying 278 of 695 hauling sites, including 17 new sites (not previously identified or occupied, Table 1). Although there were more seals per occupied site in 1988 than in 1987, fewer sites were occupied in 1988 and this was the first year since 1983 that the mainland count was lower than the previous year (Table 2). Counties north of San Francisco Bay had a larger portion of the mainland count than did the counties south of the bay; although, the percentage north of the bay is the lowest since CDFG started the survey in 1981 (Table 2).

The southern California islands were surveyed on May 25-27, using the same techniques as for the mainland. The total count for all eight islands was 3,947 seals (Table 3), which is lower than the previous year (4,322 seals).

Combining the mainland and island counts (assuming little movement between counting areas during the census) yields a 1988 count of 18,302 harbor seals in California (Table 2).

ACKNOWLEDGMENTS

We thank the pilots Richard Anthes of CDFG and Roy Everingham of EBCO Industries, who flew this survey for us. We also thank the people who donated their time to do the ground counts: M. Klope, C. Kuizenga, P. Howorth, C. Woodhouse, D. Seagars, K. Bray, M. Torok, C. Stiles, M. Workman, R. Rehder, S. Fox, M. White, M. McElligott, C. Pergler, R. Hardy, L. Laurent, S. Owen, F. Wendell, B. Hatfield, J. Hardwick, J. Ames, D. Miller, N. Black, S. Allen, T. Penniman, J. Penniman, J. Mello, C. Gutierez, P. Collier, and B. Sydeman.

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TABLE 1. Harbor seal counts with the number of sites and occupied sites by county for the June 1988 census (DN=Del Norte, H=Humbolt, MEN=Mendecino, SON=Sonoma, MAR=Marin, CC=Contra Costa, SF=San Francisco, ALA=Alameda, SM=San Mateo, FI=Faralon Islands, SC=Santa Cruz, SCL=Santa Clara, M=Monterey, SLO=San Luis Obisbo, SB=Santa Barbara, V=Ventura, SD=San Diego).

County	Seals	% Total	# Sites	# Occupied	Seals/site
DN	505	4	14	6	84
H	1913	13	60	15	128
MEN	1952	14	96	41	48
SON	1026	7	109	43	24
MAR	2366	16	61	22	108
CC	105	<1	1	1	105
SF	65	<1	2	1	65
ALA	163	1	3	2	163
SM	682	5	43	23	30
FI	40	<1	*	*	*
SC	441	3	13	8	55
SCL	0	0	1	0	0
M	1755	12	131	46	38
SLO	1926	13	119	50	39
V	120	<1	1	1	120
SB	1280	9	36	16	80
SD	16	<1	4	2	8
TOTAL	14,355	100	695	278	52

*Multiple sites included as one count

TABLE 2. Summary of harbor seal counts for the years 1982-1988

	1982	1983	1984	1985	1986	1987	1988
# sites	426	482	518	581	648	681	695
# occupied	243	185	218	276	325	321	278
% occupied	57%	38%	42%	47%	50%	47%	40%
Mainland Total	13,026	10,752	10,885	12,530	13,913	15,300	14,355
% north of of SF	56%	56%	63%	57%	57%	60%	55%
SoCal Island Total	3,865	3,472	3,218	2,280	1,801	4,322	3,947
California TOTAL	16,891	14,224	14,103	14,810	15,714	19,622	18,248

TABLE 3. Southern California Channel Island harbor seal counts by year (SCI=San Clemente Island, CAT=Santa Catalina Island, SBI=Santa Barbara Island, SNI=San Nicolas Island, ANA=Anacapa Island, SCR=Santa Cruz Island, SRI=Santa Rosa Island, SMI=San Miguel Island).

Year	SCI	CAT	SBI	SNI	ANA	SCR	SRI	SMI	TOT
1982[1]	8	68	2	694[2]	226	769	1008	1090	3865
1983	31[3]	82[3]	0[3]	694[3]	163[4]	588[4]	910[4]	1004[4]	3472
1984[5]	58	174	0	380	116	888	938	664	3218
1985[6]	67	117	31	139	207	515	585	619	2280
1986[3]	46	37	11	207	47[7]	117	487	1123	1801
1987[8]	180	205	8	470	292	902	1114	1150	4322
1988	54	262	35	550	75	635	1200	1136	3947

1 Stewart 1982
2 Stewart and Yochem 1984A
3 Hanan et al. 1987
4 Stewart and Yochem 1984B
5 Hanan et al. 1986A
6 Hanan et al. 1986B
7 Only one site photographed due to fog
8 Hanan et al. 1988

APPENDIX I. Census results for the 1988 harbor seal survey along the California coast. Date=date of count; Site=site number; Prob (source possibly effecting count): C=camera, D=disturbance, F=fog; Time=time of or count photograph; FA=count of adult seals from photograph; FP=count of pups from photograph; FT=total seals from photograph; GA=ground count of adult seals; GP=ground count of pups;GT=total seals from ground count; ET=higher number from FT or GT; Max=maximum count to date for a site

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	000.1			0	0	0	0	0	0	0	7
	001.0			0	0	0	0	0	0	0	0
	002.0			0	0	0	0	0	4	4	12
	003.0			0	0	0	0	0	12	12	24
06/8/88	004.0		0839	13	0	13	0	0	120	120	120
06/6/88	005.0		0855	0	0	69	0	0	87	87	116
06/8/88	006.0		0855	0	0	4	0	0	70	70	70
06/8/88	007.0	D		0	0	0	0	0	14	14	53
	008.0			0	0	0	0	0	0	0	11
06/6/88	009.0		0905	0	0	18	0	0	0	18	70
	010.0			0	0	0	0	0	0	0	205
	010.1			0	0	0	0	0	0	0	1
	010.8			0	0	0	0	0	0	0	3
06/7/88	011.0		0926	131	11	142	0	0	203	203	554
06/8/88	011.1		0926	198	15	213	0	0	196	213	213
	012.0			0	0	0	0	0	0	0	38
	013.0			0	0	0	0	0	0	0	19
06/6/88	013.1		0930	5	0	5	0	0	0	5	12
	014.0			0	0	0	0	0	0	0	13
	014.1			0	0	0	0	0	0	0	31
	014.2			0	0	0	0	0	0	0	122
06/8/88	014.4			0	0	0	0	0	173	173	290
06/8/88	014.8			0	0	0	0	0	98	98	98
06/6/88	015.0		0935	80	12	92	0	0	150	150	247
06/8/88	015.1			0	0	0	0	0	75	75	228
	015.2			0	0	0	0	0	0	0	119
06/6/88	016.0		0936	100	13	113	0	0	0	0	113
06/6/88	017.0		0936	37	0	37	0	0	0	37	57
	017.1			0	0	0	0	0	0	0	18
	018.0			0	0	0	0	0	0	0	127
06/6/88	019.0		0944	48	2	50	0	0	0	50	100
06/6/88	019.1		0944	7	0	7	0	0	0	7	4
	019.2			0	0	0	0	0	0	0	13
06/6/88	020.0		0945	31	1	32	0	0	0	32	43
	021.0			0	0	0	0	0	0	0	6
	021.1			0	0	0	0	0	0	0	10
	021.2			0	0	0	0	0	0	0	26
	021.3			0	0	0	0	0	0	0	2

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	021.5			0	0	0	0	0	0	0	8
06/6/88	022.0		0953	48	0	48	0	0	0	48	67
	023.0			0	0	0	0	0	0	0	1
06/6/88	023.1	C	1002	0	0	0	0	0	0	2	34
	024.0			0	0	0	0	0	0	0	58
06/6/88	025.0		1003	36	0	36	0	0	0	36	138
	026.0			0	0	0	0	0	0	0	51
	026.1			0	0	0	0	0	0	0	22
06/6/88	027.0	C	1005	13	0	13	0	0	0	13	29
	028.0			0	0	0	0	0	0	0	20
06/6/88	029.0			0	0	0	0	0	1	1	2
	030.0			0	0	0	0	0	0	0	2
	031.0			0	0	0	0	0	0	0	67
06/6/88	031.1	C	1012	0	0	0	0	0	45	45	45
	032.0			0	0	0	0	0	0	0	4
06/7/88	032.1			0	0	0	0	0	52	52	52
06/6/88	033.0		1012	22	0	22	0	0	0	22	22
	033.1			0	0	0	0	0	0	0	16
06/6/88	033.2	C	1013	6	0	6	0	0	0	6	28
06/8/88	034.0			0	0	0	0	0	17	17	20
	034.1			0	0	0	0	0	0	0	38
06/8/88	035.0		1013	49	0	49	0	0	59	59	59
	035.1			0	0	0	0	0	0	0	3
06/7/88	036.0			0	0	0	0	0	42	42	42
06/6/88	037.0		1014	4	0	4	0	0	56	56	61
06/8/88	038.0			0	0	0	0	0	68	68	68
06/7/88	039.0		1014	145	0	145	0	0	178	178	178
	039.05			0	0	0	0	0	0	0	15
	039.1			0	0	0	0	0	0	0	9
	040.0			0	0	0	0	0	0	0	126
	040.1			0	0	0	0	0	0	0	1
06/6/88	041.0		1016	18	0	18	0	0	0	18	57
06/7/88	041.1			0	0	0	0	0	94	94	94
06/6/88	041.2		1017	71	2	73	0	0	0	73	73
	042.0			0	0	0	0	0	0	0	36
06/8/88	042.1			0	0	0	0	0	35	35	35
06/6/88	043.0		1017	4	0	4	0	0	0	4	21
	043.1			0	0	0	0	0	0	0	13
06/6/88	044.0	D	1018	7	0	7	0	0	0	7	24
06/6/88	045.0	D	1019	0	0	0	0	0	0	0	22
06/6/88	046.0		1021	37	0	37	0	0	39	39	41
	046.1			0	0	0	0	0	0	0	1
	047.0			0	0	0	0	0	0	0	13
	048.0			0	0	0	0	0	0	0	22
06/6/88	049.0		1027	50	0	50	0	0	0	50	95
06/6/88	050.0		1027	44	0	44	0	0	0	44	86
06/6/88	051.0		1027	62	0	62	0	0	0	62	62
06/8/88	052.0		1030	126	0	126	0	0	121	126	126

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
06/6/88	053.0		1030	6	0	6	0	0	0	6	197
	054.0			0	0	0	0	0	0	0	65
	055.0			0	0	0	0	0	0	0	101
	055.1			0	0	0	0	0	0	0	75
	055.2			0	0	0	0	0	0	0	12
	055.3			0	0	0	0	0	0	0	1
06/6/88	055.5		1030	13	0	13	0	0	0	13	13
06/6/88	056.0		1030	42	0	42	0	0	0	42	50
	056.1			0	0	0	0	0	0	0	39
	056.2			0	0	0	0	0	0	0	33
	057.0			0	0	0	0	0	0	0	46
	057.1			0	0	0	0	0	0	0	30
	057.2			0	0	0	0	0	0	0	14
	058.0			0	0	0	0	0	0	0	67
	058.1			0	0	0	0	0	0	0	51
06/6/88	058.5		1032	18	0	18	0	0	0	18	18
06/6/88	058.7		1033	21	0	21	0	0	0	21	21
06/6/88	058.9		1033	43	0	43	0	0	0	43	43
06/6/88	059.0		1034	14	0	14	0	0	0	14	17
	060.0			0	0	0	0	0	0	0	11
06/6/88	061.0		1034	18	0	18	0	0	0	18	23
06/6/88	061.8		1034	7	0	7	0	0	0	7	7
	062.0			0	0	0	0	0	0	0	17
	063.0			0	0	0	0	0	0	0	19
	064.0			0	0	0	0	0	0	0	27
06/6/88	064.5		1035	1	1	2	0	0	0	2	2
	065.0			0	0	0	0	0	0	0	43
	065.1			0	0	0	0	0	0	0	1
	065.2			0	0	0	0	0	0	0	51
	066.0			0	0	0	0	0	0	0	51
06/6/88	066.1		1035	43	0	43	0	0	0	43	45
06/6/88	066.2		1035	0	0	0	0	0	0	1	1
	067.0			0	0	0	0	0	0	0	26
	068.0			0	0	0	0	0	0	0	15
06/6/88	068.1		1045	0	0	11	0	0	0	11	15
06/6/88	068.15		1045	0	0	21	0	0	0	21	21
	068.2			0	0	0	0	0	0	0	13
	068.3			0	0	0	0	0	0	0	1
06/6/88	069.0		1048	0	0	4	0	0	0	4	15
	069.1			0	0	0	0	0	0	0	15
	070.0			0	0	0	0	0	0	0	28
	070.1			0	0	0	0	0	0	0	15
06/6/88	071.0		1049	0	0	101	0	0	0	101	101
	071.1			0	0	0	0	0	0	0	2
	072.0			0	0	0	0	0	0	0	68
	073.0			0	0	0	0	0	0	0	13
	073.1			0	0	0	0	0	0	0	22
06/6/88	074.0		1051	0	0	61	0	0	0	61	68

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	074.1			0	0	0	0	0	0	0	2
	075.0			0	0	0	0	0	0	0	32
	075.1			0	0	0	0	0	0	0	2
06/6/88	076.0		1053	0	0	75	0	0	0	75	90
	076.1			0	0	0	0	0	0	0	40
	077.0			0	0	0	0	0	0	0	17
	077.1			0	0	0	0	0	0	0	4
06/6/88	078.0	C	1053	0	0	38	0	0	0	38	104
06/6/88	079.0		1054	0	0	43	0	0	0	43	64
	079.1			0	0	0	0	0	0	0	4
	080.0			0	0	0	0	0	0	0	33
	080.1			0	0	0	0	0	0	0	16
	081.0			0	0	0	0	0	0	0	18
	081.1			0	0	0	0	0	0	0	8
	081.2			0	0	0	0	0	0	0	20
06/6/88	081.3		1055/56	0	0	13	0	0	0	13	14
	082.0			0	0	0	0	0	0	0	70
06/6/88	083.0		1006	0	0	0	0	0	0	0	58
06/6/88	084.0		1057/59	0	0	14	0	0	0	14	14
06/6/88	085.0	C	1059	0	0	74	0	0	0	74	122
	086.0			0	0	0	0	0	0	0	68
06/6/88	086.8	C	1100	0	0	0	0	0	0	15	15
06/6/88	087.0		1101	0	0	79	0	0	0	79	138
	087.1			0	0	0	0	0	0	0	0
	088.0			0	0	0	0	0	0	0	5
	089.0			0	0	0	0	0	0	0	20
	090.0			0	0	0	0	0	0	0	15
	091.0			0	0	0	0	0	0	0	1
	091.1			0	0	0	0	0	0	0	21
	092.0			0	0	0	0	0	0	0	12
	093.0			0	0	0	0	0	0	0	6
	093.1			0	0	0	0	0	0	0	9
	094.0			0	0	0	0	0	0	0	2
	094.1			0	0	0	0	0	0	0	10
06/6/88	094.2		1109	0	0	5	0	0	0	5	5
	094.3			0	0	0	0	0	0	0	1
	094.4			0	0	0	0	0	0	0	6
	094.5			0	0	0	0	0	0	0	1
	095.0			0	0	0	0	0	0	0	15
	096.0			0	0	0	0	0	0	0	1
06/6/88	096.1		1110	0	0	3	0	0	0	3	14
	096.2			0	0	0	0	0	0	0	2
	096.3			0	0	0	0	0	0	0	1
	096.4			0	0	0	0	0	0	0	3
06/6/88	097.0		1111	0	0	9	0	0	0	9	22
06/6/88	098.0		1112	0	0	14	0	0	0	14	59
	099.0			0	0	0	0	0	0	0	5
	099.1			0	0	0	0	0	0	0	7

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
06/6/88	099.2		1113	0	0	6	0	0	0	6	6
	099.5			0	0	0	0	0	0	0	3
	100.0			0	0	0	0	0	0	0	9
06/6/88	101.0		1115	0	0	25	0	0	0	25	25
06/6/88	102.0		1116	0	0	15	0	0	0	15	44
	102.1			0	0	0	0	0	0	0	2
	103.0			0	0	0	0	0	0	0	1
06/6/88	103.8		1118	0	0	9	0	0	0	9	9
	104.0			0	0	0	0	0	0	0	7
	104.1			0	0	0	0	0	0	0	3
	104.2			0	0	0	0	0	0	0	1
	104.3			0	0	0	0	0	0	0	1
06/6/88	105.0		1121	0	0	2	0	0	0	2	6
	105.1			0	0	0	0	0	0	0	5
06/6/88	106.0		1121	0	0	1	0	0	0	1	1
06/6/88	106.1		1121	0	0	1	0	0	0	1	1
06/6/88	107.0		1122	0	0	33	0	0	0	33	34
	107.1			0	0	0	0	0	0	0	5
	108.0			0	0	0	0	0	0	0	15
	109.0			0	0	0	0	0	0	0	10
06/6/88	110.0		1124	0	0	185	0	0	208	208	208
06/6/88	111.0		1124	0	0	21	0	0	0	21	25
06/6/88	112.0		1125	0	0	43	0	0	0	43	43
	113.0			0	0	0	0	0	0	0	37
06/6/88	114.0		1126	0	0	19	0	0	0	19	71
	114.1			0	0	0	0	0	0	0	3
	114.2			0	0	0	0	0	0	0	8
	114.3			0	0	0	0	0	0	0	3
	114.4			0	0	0	0	0	0	0	9
	114.5			0	0	0	0	0	0	0	6
	115.0			0	0	0	0	0	0	0	46
06/6/88	116.0		1130	0	0	0	0	0	0	1	6
06/6/88	117.0		1128	0	0	10	0	0	0	10	29
	118.0			0	0	0	0	0	0	0	13
	118.1			0	0	0	0	0	0	0	4
	118.5			0	0	0	0	0	0	0	3
06/6/88	119.0		1131	0	0	9	0	0	0	9	9
	119.1			0	0	0	0	0	0	0	12
06/6/88	120.0		1131	0	0	0	0	0	0	2	2
	121.0			0	0	0	0	0	0	0	3
	122.0			0	0	0	0	0	0	0	18
	123.0			0	0	0	0	0	0	0	4
	124.0			0	0	0	0	0	0	0	1
06/6/88	125.0		1132	0	0	2	0	0	0	2	13
	126.0			0	0	0	0	0	0	0	11
	126.5			0	0	0	0	0	0	0	2
06/6/88	127.0		1134	0	0	118	0	0	0	118	118
	128.0			0	0	0	0	0	0	0	1

DATE	SITE	PROBC	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
06/6/88	129.0	C	1136	0	0	15	0	0	0	15	42
06/6/88	130.0		1140	0	0	153	0	0	0	153	266
	130.1			0	0	0	0	0	0	0	8
06/6/88	131.0		1140	0	0	33	0	0	0	33	71
	131.1			0	0	0	0	0	0	0	56
	131.2			0	0	0	0	0	0	0	3
	131.3			0	0	0	0	0	0	0	64
06/6/88	132.0		1141	0	0	33	0	0	0	33	107
	132.1			0	0	0	0	0	0	0	8
06/6/88	133.0		1142	0	0	114	0	0	0	114	159
	134.0			0	0	0	0	0	0	0	12
	134.1			0	0	0	0	0	0	0	4
	134.2			0	0	0	0	0	0	0	10
	134.5			0	0	0	0	0	0	0	10
	135.0			0	0	0	0	0	0	0	38
06/6/88	136.0		1145	0	0	0	0	0	0	4	10
06/6/88	137.0		1147	0	0	0	0	0	0	1	5
	137.1			0	0	0	0	0	0	0	2
	138.0			0	0	0	0	0	0	0	26
	138.1			0	0	0	0	0	0	0	2
	139.0			0	0	0	0	0	0	0	14
	139.1			0	0	0	0	0	0	0	14
06/6/88	140.0		1150	0	0	9	0	0	0	9	19
	140.1			0	0	0	0	0	0	0	1
06/6/88	141.0	C	1151	0	0	20	0	0	0	20	71
	141.1			0	0	0	0	0	0	0	3
	142.0			0	0	0	0	0	0	0	31
	143.0			0	0	0	0	0	0	0	2
	143.5			0	0	0	0	0	0	0	2
	144.0			0	0	0	0	0	0	0	28
	144.5			0	0	0	0	0	0	0	1
06/6/88	145.0		1156	0	0	35	0	0	0	35	35
	146.0			0	0	0	0	0	0	0	50
	147.0			0	0	0	0	0	0	0	48
06/6/88	148.0		1158	0	0	6	0	0	0	6	62
06/6/88	149.0		1159	0	0	6	0	0	0	6	71
06/6/88	150.0		1159	0	0	31	0	0	0	331	96
06/6/88	151.0		1158	0	0	22	0	0	0	22	80
06/8/88	152.0		1008	0	0	28	0	0	55	55	85
06/7/88	153.0		1008	0	0	9	0	0	0	9	93
06/7/88	154.0		1007	0	0	12	0	0	0	12	58
	154.1			0	0	0	0	0	0	0	2
	155.0			0	0	0	0	0	0	0	65
06/7/88	155.1		1007	0	0	18	0	0	0	18	63
	156.0			0	0	0	0	0	0	0	61
	156.1			0	0	0	0	0	0	0	54
06/7/88	157.0		1006	0	0	104	0	0	132	132	175
	157.1			0	0	0	0	0	0	0	1

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	158.0			0	0	0	0	0	0	0	18
	159.0			0	0	0	0	0	0	0	9
06/7/88	160.0		1003	0	0	34	0	0	0	34	45
	160.05			0	0	0	0	0	0	0	3
	160.1			0	0	0	0	0	0	0	9
06/7/88	161.0		1000	0	0	0	0	0	0	3	49
	161.1			0	0	0	0	0	0	0	32
	161.2			0	0	0	0	0	0	0	6
06/7/88	162.0		0958	0	0	59	0	0	0	59	149
	162.1			0	0	0	0	0	0	0	1
	163.0			0	0	0	0	0	0	0	7
06/9/88	164.0			0	0	0	0	0	54	54	54
06/7/88	164.7		1030	0	0	41	0	0	0	41	41
06/8/88	165.0	D	1032	0	0	0	0	0	20	20	68
06/8/88	166.0		1035	0	0	79	0	0	149	149	149
06/7/88	167.0		1037	0	0	58	0	0	67	67	169
06/7/88	167.8		1040	0	0	1	0	0	0	0	1
	168.0			0	0	0	0	0	0	0	29
06/7/88	169.0		1041	0	0	22	0	0	0	22	40
06/7/88	170.0		1044	1	0	1	0	0	0	1	1
	170.1			0	0	0	0	0	0	0	1
	171.0			0	0	0	0	0	0	0	33
06/7/88	172.0		1045	140	4	144	0	0	0	144	144
06/7/88	173.0		1046	10	2	12	0	0	0	12	53
	174.0			0	0	0	0	0	0	0	80
06/7/88	175.0		1046	26	0	26	0	0	0	26	81
06/7/88	176.0		1050	7	0	7	0	0	0	7	31
06/7/88	177.0		1051	5	0	5	0	0	0	5	90
06/7/88	178.0		1053	7	3	10	0	0	0	10	116
06/7/88	179.0		1054	13	0	13	0	0	0	13	59
06/7/88	180.0		1054	20	2	22	0	0	0	22	44
06/7/88	181.0		1055	1	0	1	0	0	0	1	17
	182.0			0	0	0	0	0	0	0	3
	182.1			0	0	0	0	0	0	0	3
06/7/88	182.2		1057	2	1	3	0	0	0	3	4
06/7/88	182.7		1058	1	0	1	0	0	0	1	1
	183.0			0	0	0	0	0	0	0	4
06/7/88	184.0		1059	1	0	1	0	0	0	1	1
06/7/88	185.0		1059	20	2	22	0	0	0	22	23
	186.0			0	0	0	0	0	0	0	12
	186.1			0	0	0	0	0	0	0	1
	187.0			0	0	0	0	0	0	0	8
06/7/88	188.0		1101	0	0	111	0	0	0	111	111
	189.0			0	0	0	0	0	0	0	11
06/7/88	190.0		1103	0	0	69	0	0	0	69	71
	191.0			0	0	0	0	0	0	0	21
06/7/88	191.1	C	1104	0	0	0	0	0	0	2	6
06/7/88	192.0		1104	0	0	5	0	0	0	5	34

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
06/7/88	193.0	C	1104	0	0	5	0	0	0	5	24
	193.1			0	0	0	0	0	0	0	5
06/7/88	194.0	C	1104	0	0	1	0	0	0	1	54
	194.1			0	0	0	0	0	0	0	1
	195.0			0	0	0	0	0	0	0	40
06/7/88	195.1		1111	0	0	72	0	0	146	146	146
	196.0			0	0	0	0	0	0	0	47
	196.1			0	0	0	0	0	0	0	33
06/7/88	197.0		1114	0	0	50	0	0	0	50	122
06/7/88	197.1		1115	0	0	59	0	0	0	59	100
	198.0			0	0	0	0	0	0	0	125
	198.1			0	0	0	0	0	0	0	25
06/7/88	199.0		1115	0	0	27	0	0	0	27	131
	200.0			0	0	0	0	0	0	0	58
	200.1			0	0	0	0	0	0	0	24
06/7/88	201.0		1117	0	0	68	0	0	0	68	68
	201.1			0	0	0	0	0	0	0	3
06/7/88	202.0		1120	0	0	23	0	0	0	23	58
	202.1			0	0	0	0	0	0	0	0
	203.0			0	0	0	0	0	0	0	67
	204.0			0	0	0	0	0	0	0	14
06/6/88	205.0		1720	0	0	122	0	0	0	122	328
06/6/88	206.0		1718	0	0	41	0	0	0	41	41
06/6/88	207.0		1735	0	0	31	0	0	0	31	74
	208.0			0	0	0	0	0	0	0	17
06/7/88	209.0	C	1131	0	0	65	0	0	0	65	65
06/7/88	210.0		1134	0	0	18	0	0	0	18	18
	210.8			0	0	0	0	0	0	0	13
	211.0			0	0	0	0	0	0	0	30
	212.0			0	0	0	0	0	0	0	97
06/7/88	213.0		1137	0	0	105	0	0	0	105	123
	214.0			0	0	0	0	0	0	0	8
06/7/88	215.0		1147	0	0	13	0	0	0	13	34
	215.1			0	0	0	0	0	0	0	1
	216.0			0	0	0	0	0	0	0	5
	216.1			0	0	0	0	0	0	0	1
06/7/88	217.0		1153	0	0	113	0	0	0	113	153
	217.1			0	0	0	0	0	0	0	65
06/7/88	218.0		1154	0	0	72	0	0	0	72	185
	218.1			0	0	0	0	0	0	0	24
	219.0			0	0	0	0	0	0	0	25
	219.1			0	0	0	0	0	0	0	1
	219.2			0	0	0	0	0	0	0	1
	219.3			0	0	0	0	0	0	0	4
06/7/88	220.0		1159	0	0	66	0	0	0	66	93
06/7/88	221.0		1200	0	0	465	0	0	762	762	831
	222.0			0	0	0	0	0	0	0	11
	223.0			0	0	0	0	0	0	0	3

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
06/7/88	224.0		1206	0	0	61	0	0	0	61	509
06/7/88	225.0		1207/16	0	0	276	0	0	0	276	726
	226.0			0	0	0	0	0	0	0	66
	226.1			0	0	0	0	0	0	0	21
	226.2			0	0	0	0	0	0	0	72
	226.3			0	0	0	0	0	0	0	12
	227.0			0	0	0	0	0	0	0	34
	228.0			0	0	0	0	0	0	0	29
	229.0			0	0	0	0	0	0	0	0
	230.0			0	0	0	0	0	0	0	124
06/7/88	231.0		1220	0	0	155	0	0	0	155	155
	232.0			0	0	0	0	0	0	0	90
	232.1			0	0	0	0	0	0	0	28
	232.2			0	0	0	0	0	0	0	70
	232.3			0	0	0	0	0	0	0	17
	233.0			0	0	0	0	0	0	0	31
06/7/88	234.0		1220	0	0	1	0	0	0	1	13
	235.0			0	0	0	0	0	0	0	17
06/7/88	236.0		1228	0	0	0	0	0	0	1	19
	237.0			0	0	0	0	0	0	0	1
06/7/88	238.0		1228	0	0	0	0	0	0	2	20
06/7/88	239.0		1229	0	0	46	0	0	0	46	46
	240.0			0	0	0	0	0	0	0	10
	240.1			0	0	0	0	0	0	0	3
	241.0			0	0	0	0	0	0	0	135
	242.0			0	0	0	0	0	0	0	2
06/7/88	242.1		1230	0	0	1	0	0	0	1	1
	243.0			0	0	0	0	0	0	0	111
06/7/88	244.0		1230	0	0	179	0	0	0	179	179
	244.1			0	0	0	0	0	0	0	1
06/7/88	245.0		1231	0	0	256	0	0	0	256	419
	245.1			0	0	0	0	0	0	0	1
06/7/88	246.0		1232	0	0	17	0	0	0	17	17
06/7/88	247.0		1233	0	0	3	0	0	0	3	5
06/7/88	247.1		1241	0	0	13	0	0	0	13	8
06/7/88	248.0		1235	0	0	289	0	0	0	289	431
	248.1			0	0	0	0	0	0	0	72
	248.5			0	0	0	0	0	0	0	30
06/7/88	249.0		1236	0	0	17	0	0	0	17	236
06/7/88	249.1		1236	0	0	5	0	0	0	5	1
	249.5			0	0	0	0	0	0	0	22
	250.0			0	0	0	0	0	0	0	3
06/7/88	251.0		1247	0	0	58	0	0	0	58	115
	252.0			0	0	0	0	0	0	0	12
06/7/88	253.0		1248	0	0	3	0	0	0	3	12
06/7/88	254.0		1251	0	0	1	0	0	0	1	9
	255.0			0	0	0	0	0	0	0	18
	255.1			0	0	0	0	0	0	0	16

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	256.0			0	0	0	0	0	0	0	8
06/7/88	257.0	C	1254	0	0	17	0	0	0	17	47
06/7/88	257.8		1254	0	0	3	0	0	0	3	3
	258.0			0	0	0	0	0	0	0	2
	259.0			0	0	0	0	0	0	0	1
	259.1			0	0	0	0	0	0	0	1
	260.0			0	0	0	0	0	0	0	2
	260.1			0	0	0	0	0	0	0	1
	261.0			0	0	0	0	0	0	0	3
	261.1			0	0	0	0	0	0	0	10
06/7/88	261.2		1300	0	0	3	0	0	0	3	18
06/9/88	262.0		1047	0	0	226	0	0	220	226	258
06/8/88	263.0		1048	0	0	25	0	0	0	25	31
	263.1			0	0	0	0	0	0	0	21
06/8/88	263.2		1048	0	0	15	0	0	0	15	15
	264.0			0	0	0	0	0	0	0	26
06/8/88	264.1		1049	0	0	26	0	0	0	26	26
	265.0			0	0	0	0	0	0	0	10
	265.1			0	0	0	0	0	0	0	5
	266.0			0	0	0	0	0	0	0	13
	267.0			0	0	0	0	0	0	0	5
06/8/88	268.0		1051	0	0	37	0	0	0	37	37
	268.1			0	0	0	0	0	0	0	4
	269.0			0	0	0	0	0	0	0	13
	270.0			0	0	0	0	0	0	0	9
	270.1			0	0	0	0	0	0	0	3
	270.2			0	0	0	0	0	0	0	1
06/8/88	271.0		1054	0	0	11	0	0	0	11	28
	272.0			0	0	0	0	0	0	0	14
	272.1			0	0	0	0	0	0	0	1
	273.0			0	0	0	0	0	0	0	70
	273.1			0	0	0	0	0	0	0	1
06/8/88	274.0		1056	0	0	25	0	0	0	25	33
	274.1			0	0	0	0	0	0	0	17
06/8/88	275.0		1057	0	0	3	0	0	0	3	20
06/8/88	276.0		1058	0	0	6	0	0	0	6	21
06/8/88	276.1		1058	0	0	16	0	0	0	16	29
	277.0			0	0	0	0	0	0	0	51
	277.1			0	0	0	0	0	0	0	3
	278.0			0	0	0	0	0	0	0	6
	279.0			0	0	0	0	0	0	0	1
	280.0			0	0	0	0	0	0	0	9
06/8/88	281.0		1101	0	0	24	0	0	0	24	57
06/8/88	282.0		1102	0	0	21	0	0	0	21	50
06/8/88	282.1		1108	0	0	7	0	0	0	7	7
	283.0			0	0	0	0	0	0	0	10
06/8/88	283.1		1103	0	0	1	0	0	0	1	1
06/8/88	283.2	D	1110	0	0	26	0	0	0	26	26

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
06/8/88	284.0		1112	0	0	12	0	0	0	12	29
	284.1			0	0	0	0	0	0	0	5
	284.2			0	0	0	0	0	0	0	3
	284.3			0	0	0	0	0	0	0	1
	285.0			0	0	0	0	0	0	0	57
	285.1			0	0	0	0	0	0	0	16
	285.2			0	0	0	0	0	0	0	10
	285.4			0	0	0	0	0	0	0	4
	286.0			0	0	0	0	0	0	0	6
	286.5			0	0	0	0	0	0	0	3
06/8/88	287.0		1114	0	0	54	0	0	0	54	67
06/8/88	287.1		1116	0	0	3	0	0	0	3	3
	287.2			0	0	0	0	0	0	0	1
	287.3			0	0	0	0	0	0	0	2
	288.0			0	0	0	0	0	0	0	10
06/8/88	289.0		1116	0	0	4	0	0	0	4	10
06/8/88	290.0		1117	0	0	22	0	0	0	22	34
06/8/88	291.0		1119	0	0	14	0	0	0	14	14
	291.1			0	0	0	0	0	0	0	1
06/8/88	292.0		1120	0	0	1	0	0	0	1	1
	292.1			0	0	0	0	0	0	0	2
	293.0			0	0	0	0	0	0	0	18
06/8/88	293.5		1121	0	0	9	0	0	0	9	9
	294.0			0	0	0	0	0	0	0	26
	294.1			0	0	0	0	0	0	0	5
	295.0			0	0	0	0	0	0	0	40
06/8/88	296.0		1122	0	0	77	0	0	0	77	115
	296.1			0	0	0	0	0	0	0	2
06/8/88	297.0		1125	0	0	2	0	0	0	2	4
	297.1			0	0	0	0	0	0	0	35
06/8/88	298.0		1127	0	0	4	0	0	0	4	26
06/8/88	298.1		1128	0	0	33	0	0	0	33	48
	298.2			0	0	0	0	0	0	0	4
	299.0			0	0	0	0	0	0	0	36
06/8/88	299.1		1130	0	0	1	0	0	0	1	29
	300.0			0	0	0	0	0	0	0	2
	300.1			0	0	0	0	0	0	0	1
06/8/88	301.0		1131	0	0	5	0	0	0	5	5
	301.1			0	0	0	0	0	0	0	23
06/8/88	302.0		1132	0	0	56	0	0	0	56	125
06/8/88	303.0		1133	0	0	4	0	0	0	4	17
06/8/88	304.0		1134	0	0	23	0	0	0	23	39
06/8/88	305.0		1135	0	0	5	0	0	0	5	53
	306.0			0	0	0	0	0	0	0	1
06/8/88	307.0		1135	0	0	75	0	0	0	75	164
	308.0			0	0	0	0	0	0	0	74
06/8/88	309.0		1135	0	0	25	0	0	0	25	45
	310.0			0	0	0	0	0	0	0	3

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	310.1			0	0	0	0	0	0	0	1
	311.0			0	0	0	0	0	0	0	18
06/8/88	312.0		1138	0	0	21	0	0	0	21	21
	312.1			0	0	0	0	0	0	0	27
06/8/88	313.0		1138/39	0	0	22	0	0	0	22	79
	313.1			0	0	0	0	0	0	0	9
	314.0			0	0	0	0	0	0	0	4
06/8/88	315.0		1142	0	0	70	0	0	0	70	70
	315.1			0	0	0	0	0	0	0	4
	315.2			0	0	0	0	0	0	0	9
	316.0			0	0	0	0	0	0	0	35
	316.1			0	0	0	0	0	0	0	3
06/8/88	317.0		1146	0	0	5	0	0	0	5	13
	317.1			0	0	0	0	0	0	0	3
06/8/88	318.0		1149	0	0	28	0	0	0	28	28
	318.1			0	0	0	0	0	0	0	25
	319.0			0	0	0	0	0	0	0	7
	319.1			0	0	0	0	0	0	0	4
	320.0			0	0	0	0	0	0	0	69
06/8/88	321.0		1151	0	0	32	0	0	0	32	32
	322.0			0	0	0	0	0	0	0	0
06/8/88	323.0		1154	0	0	1	0	0	0	1	28
06/8/88	324.0		1154	0	0	17	0	0	0	17	53
	324.1			0	0	0	0	0	0	0	2
06/8/88	324.5		1155/57	0	0	9	0	0	0	9	9
06/8/88	325.0		1159	0	0	6	0	0	0	0	27
06/8/88	325.1		1200	0	0	32	0	0	0	32	35
	325.2			0	0	0	0	0	0	0	15
06/8/88	326.0		1202	0	0	95	0	0	0	95	145
06/8/88	327.0		1208	0	0	20	0	0	0	20	48
06/8/88	327.1		1207	0	0	37	0	0	0	37	57
	328.0			0	0	0	0	0	0	0	49
06/8/88	329.0		1209	0	0	27	0	0	0	27	57
	329.1			0	0	0	0	0	0	0	2
06/8/88	329.5		1211	0	0	1	0	0	0	1	1
06/8/88	330.0		1214	0	0	23	0	0	0	23	42
	331.0			0	0	0	0	0	0	0	1
06/8/88	331.1		1219	0	0	9	0	0	0	9	11
06/8/88	332.0		1222	0	0	76	0	0	0	76	176
	332.1			0	0	0	0	0	0	0	14
	332.5			0	0	0	0	0	0	0	7
06/8/88	333.0		1225	0	0	27	0	0	0	27	60
	334.0			0	0	0	0	0	0	0	73
	335.0			0	0	0	0	0	0	0	36
	335.1			0	0	0	0	0	0	0	5
	335.2			0	0	0	0	0	0	0	1
06/8/88	336.0		1228	0	0	10	0	0	0	10	19
	336.05			0	0	0	0	0	0	0	11

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	336.1			0	0	0	0	0	0	0	10
	336.2			0	0	0	0	0	0	0	1
06/8/88	337.0		1231	0	0	35	0	0	0	35	37
	337.1			0	0	0	0	0	0	0	2
06/8/88	338.0		1232	0	0	74	0	0	0	74	74
	338.1			0	0	0	0	0	0	0	1
06/8/88	338.2		1233	0	0	6	0	0	0	6	13
	339.0			0	0	0	0	0	0	0	38
	339.1			0	0	0	0	0	0	0	17
06/8/88	340.0		1236	0	0	14	0	0	0	14	18
	340.05			0	0	0	0	0	0	0	1
	340.1			0	0	0	0	0	0	0	16
06/8/88	341.0		1237	0	0	41	0	0	0	41	98
	342.0			0	0	0	0	0	0	0	32
06/8/88	342.1		1240	0	0	24	0	0	0	24	25
06/8/88	343.0		1241	0	0	9	0	0	0	9	34
	343.1			0	0	0	0	0	0	0	20
06/8/88	344.0		1243	0	0	13	0	0	0	13	22
	344.1			0	0	0	0	0	0	0	15
	345.0			0	0	0	0	0	0	0	31
	345.05			0	0	0	0	0	0	0	13
	345.1			0	0	0	0	0	0	0	24
06/8/88	345.2		1244	0	0	25	0	0	0	25	25
	345.3			0	0	0	0	0	0	0	21
	346.0			0	0	0	0	0	0	0	41
06/8/88	347.0		1246	0	0	17	0	0	0	17	21
06/8/88	348.0		1249	0	0	43	0	0	0	43	43
06/8/88	349.0		1251	0	0	36	0	0	0	36	51
	349.1			0	0	0	0	0	0	0	16
	350.0			0	0	0	0	0	0	0	27
06/8/88	351.0		1253	0	0	18	0	0	0	18	18
06/8/88	352.0	C	1254/55	0	0	151	0	0	140	151	183
06/8/88	352.1	C	1257	0	0	39	0	0	0	39	39
06/8/88	352.2		1304	0	0	26	0	0	0	26	26
	353.0			0	0	0	0	0	0	0	55
06/8/88	354.0		1306	0	0	46	0	0	0	46	46
	355.0			0	0	0	0	0	0	0	9
	355.1			0	0	0	0	0	0	0	4
	356.0			0	0	0	0	0	0	0	67
	356.1			0	0	0	0	0	0	0	100
06/8/88	357.0		1310	0	0	11	0	0	0	11	14
	358.0			0	0	0	0	0	0	0	25
	359.0			0	0	0	0	0	0	0	14
	359.1			0	0	0	0	0	0	0	1
	360.0			0	0	0	0	0	0	0	58
	361.0			0	0	0	0	0	0	0	186
	362.0			0	0	0	0	0	0	0	239
06/8/88	363.0		1318	0	0	627	0	0	0	627	839

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
06/8/88	364.0		1320	0	0	13	0	0	0	13	13
06/8/88	365.0		1323	0	0	154	0	0	0	154	154
06/8/88	366.0		1323	0	0	4	0	0	0	4	240
	366.1			0	0	0	0	0	0	0	142
	367.0			0	0	0	0	0	0	0	10
06/8/88	367.1		1332	0	0	7	0	0	0	7	21
06/8/88	367.2		1331	0	0	8	0	0	0	0	23
	368.0			0	0	0	0	0	0	0	43
06/8/88	368.1		1336	0	0	22	0	0	0	22	33
	369.0			0	0	0	0	0	0	0	13
	369.1			0	0	0	0	0	0	0	1
	370.0			0	0	0	0	0	0	0	3
06/8/88	371.0		1345	0	0	9	0	0	0	9	25
	372.0			0	0	0	0	0	0	0	3
06/8/88	372.1		1347	0	0	16	0	0	0	16	16
06/8/88	373.0		1351	0	0	146	0	0	0	146	206
06/8/88	373.1		1351	0	0	26	0	0	0	26	34
06/9/88	374.0		1241	0	0	43	0	0	0	43	43
	375.0			0	0	0	0	0	0	0	10
	376.0			0	0	0	0	0	0	0	4
	377.0			0	0	0	0	0	0	0	4
	378.0			0	0	0	0	0	0	0	5
	378.1			0	0	0	0	0	0	0	2
	379.0			0	0	0	0	0	0	0	4
	380.0			0	0	0	0	0	0	0	15
	380.1			0	0	0	0	0	0	0	4
	380.2			0	0	0	0	0	0	0	2
06/9/88	381.0		1248	0	0	73	0	0	0	73	73
	381.1			0	0	0	0	0	0	0	441
	381.2			0	0	0	0	0	0	0	81
	381.3			0	0	0	0	0	0	0	15
06/8/88	382.0		1405/07	0	0	1060	0	0	585	1060	1060
06/9/88	383.0		1259	0	0	316	0	0	0	316	830
06/9/88	384.0		1307	0	0	22	0	0	0	22	518
06/9/88	385.0		1310	0	0	80	0	0	0	88	170
	386.0			0	0	0	0	0	0	0	9
	386.1			0	0	0	0	0	0	0	1
	387.0			0	0	0	0	0	0	0	17
	388.0			0	0	0	0	0	0	0	39
	389.0			0	0	0	0	0	0	0	31
06/9/88	390.0		1318	0	0	35	0	0	0	35	79
	390.1			0	0	0	0	0	0	0	14
	391.0			0	0	0	0	0	0	0	43
	392.0			0	0	0	0	0	0	0	19
06/9/88	393.0		1319	0	0	18	0	0	0	18	93
	394.0			0	0	0	0	0	0	0	22
6/10/88	395.0		1320	0	0	26	0	0	36	36	36
	395.1			0	0	0	0	0	0	0	1

DATE	SITE	PROB	TIME	FA	FP	FT	GA	GP	GT	ET	MAX
	396.0			0	0	0	0	0	0	0	23
	396.1			0	0	0	0	0	0	0	16
	397.0			0	0	0	0	0	0	0	12
	398.0			0	0	0	0	0	0	0	43
	398.1			0	0	0	0	0	0	0	6
	399.0			0	0	0	0	0	0	0	69
	400.0			0	0	0	0	0	0	0	67
	401.0			0	0	0	0	0	0	0	24
	402.0			0	0	0	0	0	0	0	15
	403.0			0	0	0	0	0	0	0	27
	404.0			0	0	0	0	0	0	0	79
	405.0			0	0	0	0	0	0	0	30
06/9/88	405.05		1323	0	0	3	0	0	0	3	3
	405.1			0	0	0	0	0	0	0	1
	406.0			0	0	0	0	0	0	0	55
	407.0			0	0	0	0	0	0	0	9
	407.1			0	0	0	0	0	0	0	13
	408.0			0	0	0	0	0	0	0	10
06/9/88	409.0		1339	0	0	42	0	0	0	42	341
	410.0			0	0	0	0	0	0	0	48
	411.0			0	0	0	0	0	0	0	20
	412.0			0	0	0	0	0	0	0	56
06/9/88	413.0		1342	0	0	48	0	0	0	48	96
	413.1			0	0	0	0	0	0	0	1
06/9/88	414.0		1347	0	0	186	0	0	0	186	516
06/9/88	415.0		1347	0	0	33	0	0	0	33	100
	416.0			0	0	0	0	0	0	0	61
	417.0			0	0	0	0	0	0	0	3
	418.0		1351	0	0	176	0	0	0	176	542
	419.0			0	0	0	0	0	0	0	3
06/9/88	420.0	C	1358	0	0	0	0	0	0	20	23
	421.0			0	0	0	0	0	0	0	9
06/7/88	422.0			0	0	0	0	0	40	40	84

APPENDIX II. Harbor seal counts by site and census (82R=April 1982, 83R= April 1983, 82=May-June 1982, 83=June 1983, 84=June 1984, 85=May-June 1985, 86=June 1986, 87=June 1987, 88=June 88). Rookery sites are underlined for those censuses conducted during pupping season. Sites are blank until the census when seals were first observed.

YEAR	82R	83R	82	83	84	85	86	87	88
SITE									
0.1					7				0
1.0	0	0	0	0	0	0	0	0	0
2.0	0	0	0	0	0	0	0	10	4
3.0	19	24	6	13	9	16	13	4	12
4.0	43	67	85	95	94	72	99	94	120
5.0	0	93	0	0	5	48	68	31	87
6.0	8	13	0	0	22	0	3	41	70
7.0	14	23	53	0	0	52	35	15	14
8.0	0	0	0	0	0	0	0	11	0
9.0	0	0	0	0	0	19	4	38	18
10.0	12	0	0	205	29	0	62	4	0
10.1							1	0	0
10.8								3	0
11.0	242	223	387	554	375	388	385	303	203
11.1								56	213
12.0	3	4	38	0	18	30	18	12	0
13.0	19	0	9	0	0	0	1	0	0
13.1		2		0	0	0	0	12	5
14.0	0	0	0	13	0	0	1	0	0
14.1				31	0	13	0	6	0
14.2								122	0
14.4							290	215	173
14.8							70	74	98
15.0	0	143	24	247	0	59	0	46	150
15.1						228	0	72	75
15.2						119	0	0	0
16.0	0	0	0	49	71	78	107	56	0
17.0	0	23	41	0	0	0	0	0	37
17.1									0
18.0	17	0	18	0	0	0	0	0	0
19.0	70	21	0	94	100	70	92	53	50
19.1								4	7
19.2								13	0
20.0	2	0	18	0	0	33	43	0	32
21.0	0	0	0	4	0	6	3	0	0
21.1				10	0	0	0	0	0
21.2					26	0	0	0	0
21.3					2	0	0	0	0
21.5								8	0
22.0	60	18	46	51	62	67	67	26	48
23.0	0	0	0	0	0	0	0	0	0
23.1				2	0	34	0	0	2
24.0	19	0	0	58	0	5	0	3	0

YEAR SITE	82R	83R	82	83	84	85	86	87	88
25.0	81	39	138	0	30	44	110	28	36
26.0	51	0	0	0	0	0	0	0	0
26.1	0	22	0	0	0	0	0	0	0
27.0	22	0	29	0	0	19	0	0	13
28.0	0	0	0	0	0	0	0	19	0
29.0	0	2	0	0	0	0	0	0	1
30.0	0	0	0	0	0	0	0	0	0
31.0	40	0	67	0	0	0	0	13	0
31.1						12	6	0	45
32.0	0	0	1	0	0	0	0	0	0
32.1									52
33.0	13	14	0	0	0	0	0	7	22
33.1		16		0	0	0	0	0	0
33.2						28	17	17	6
34.0	11	3	0	0	20	0	10	0	17
34.1					38	0	0	0	0
35.0	20	14	58	20	2	29	26	19	59
35.1		3		0	0	0	0	0	0
36.0	0	0	22	13	15	18	32	0	42
37.0	16	0	60	0	61	15	34	48	56
38.0	9	0	0	0	0	0	0	0	68
39.0	29	0	132	66	124	55	146	118	178
39.05								15	0
39.1							9	2	0
40.0	0	0	0	0	0	0	0	0	0
40.1						1	0	0	0
41.0	23	5	7	5	21	0	41	45	18
41.1					49	0	0	0	94
41.2							14	3	73
42.0	17	12	9	36	0	27	5	0	0
42.1				12	0	0	16	12	35
43.0	0	0	21	0	0	12	0	0	4
43.1		1		0	0	0	2	13	0
44.0	24	12	0	0	0	0	1	0	7
45.0	1	22	0	0	0	0	14	0	0
46.0	41	37	29	41	33	31	29	38	39
46.1		1		0	0	0	0	0	0
47.0	1	0	0	0	0	0	0	0	0
48.0	19	0	0	0	0	0	0	0	0
49.0	15	0	0	10	0	95	53	27	50
50.0	86	0	53	0	0	0	0	6	44
51.0	15	0	0	0	0	0	0	0	62
52.0	23	0	24	0	0	100	24	0	126
53.0	90	80	197	27	13	60	97	85	6
54.0	0	0	49	43	0	63	14	0	0
55.0	0	29	35	101	0	0	47	0	0
55.1					30	12	0	75	0
55.2							12	0	0
55.3								1	0
55.5								1	13

YEAR SITE	82R	83R	82	83	84	85	86	87	88
56.0	30	50	0	0	0	8	0	0	42
56.1		39		12	0	0	0	0	0
56.2		7		0	0	2	0	33	0
57.0	46	0	0	2	0	0	0	0	0
57.1						10	30	0	0
57.2						14	0	0	0
58.0	0	0	0	18	15	0	15	20	0
58.1				51	0	0	34	0	0
58.5									18
58.7								6	21
58.9								10	43
59.0	3	0	0	0	0	8	0	17	14
60.0	10	11	0	0	0	0	0	0	0
61.0	0	0	4	0	12	12	0	23	18
61.8									7
62.0	0	0	17	0	0	0	0	0	0
63.0	8	0	19	0	0	0	0	0	0
64.0	27	11	0	9	0	0	11	0	0
64.5									2
65.0	32	8	42	43	0	0	21	0	0
65.1		1		0	0	0	0	0	0
65.2					28	2	0	51	0
66.0	17	14	0	51	15	0	0	4	0
66.1		10		8	0	9	45	39	43
66.2		1		0	0	0	0	0	1
67.0	8	0	0	0	0	3	6	0	0
68.0	0	0	0	0	14	0	0	0	0
68.15									11
68.1						15	0	12	21
68.2							13	0	0
68.3							1	0	0
69.0	9	0	15	0	0	0	4	5	4
69.1					15	0	9	5	0
70.0	18	10	11	0	0	0	28	10	0
70.1				8	0	0	0	0	0
71.0	23	0	8	87	28	56	74	27	101
71.1					2	0	0	0	0
72.0	68	0	23	0	0	21	20	0	0
73.0	8	13	0	0	0	0	0	0	0
73.1	0	5	0	0	0	1	0	0	0
74.0	33	33	50	48	33	45	55	49	61
74.1							2	0	0
75.0	17	7	0	23	20	3	11	32	0
75.1							2	0	0
76.0	71	48	0	90	25	58	82	51	75
76.1					40	0	24	6	0
77.0	5	0	0	17	0	0	0	0	0
77.1				1	0	0	4	0	0
78.0	54	13	41	0	0	0	25	39	38
79.0	45	0	48	34	30	0	36	27	43

YEAR	82R	83R	82	83	84	85	86	87	88
SITE									
79.1							4	0	0
80.0	12	0	33	0	0	0	0	0	0
80.1						16	0	14	0
81.0	0	0	0	0	0	8	0	0	0
81.1						8	0	0	0
81.2						20	0	0	0
81.3						10	0	24	13
82.0	0	0	0	0	13	0	0	0	0
83.0	0	0	0	3	0	0	0	0	0
84.0	0	0	0	0	0	11	4	7	14
85.0	67	14	122	64	77	37	109	102	74
86.0	25	26	18	4	0	0	3	0	0
86.8									15
87.0	80	0	138	101	121	28	53	46	79
87.1	0	0	0	0	0	0	0	0	0
88.0	0	0	0	0	0	0	0	0	0
89.0	0	0	0	0	0	0	0	0	0
90.0	0	0	0	0	0	0	0	0	0
91.0	0	0	0	0	0	0	1	1	0
91.1	0			21	0	0	0	0	0
92.0	0	0	0	0	0	0	6	0	0
93.0	0	0	1	0	0	0	1	6	0
93.1					9	0	0	9	0
94.0	0	0	2	0	0	0	0	0	0
94.1						10	9	0	0
94.2						4	0	0	5
94.3						1	0	0	0
94.4							6	0	0
94.5							1	0	0
95.0	1	0	7	0	15	0	0	0	0
96.0	0	0	1	0	0	0	1	0	0
96.1					14	0	1	0	3
96.2						2	0	0	0
96.3						1	0	0	0
96.4						3	0	0	0
97.0	22	0	1	0	10	15	20	20	9
98.0	24	0	59	10	0	0	43	31	14
99.0	0	0	0	0	0	0	0	0	0
99.1						7	1	2	0
99.2						3	0	6	6
99.5								3	0
100.0	0	0	9	0	0	0	0	4	0
101.0	14	0	9	9	0	0	0	18	25
102.0	20	0	44	4	0	0	28	14	15
102.1							2	0	0
103.0	0	0	1	0	0	0	0	0	0
103.8									9
104.0	0	0	7	0	0	0	5	0	0
104.1							3	0	0
104.2							1	0	0

YEAR SITE	82R	83R	82	83	84	85	86	87	88
104.3							1	0	0
105.0	0	0	6	0	0	0	0	1	2
105.1							5	0	0
106.0	0	0	1	0	0	0	0	0	1
106.1							1	0	1
107.0	29	0	34	18	0	8	6	0	33
107.1							5	0	0
108.0	0	0	15	0	0	0	10	0	0
109.0	4	0	0	0	0	10	0	0	0
110.0	128	150	125	79	82	159	190	99	208
111.0	0	0	13	10	15	6	0	25	21
112.0	13	0	7	0	0	0	0	0	43
113.0	0	0	0	0	0	37	0	0	0
114.0	0	0	27	0	0	0	0	51	19
114.1		3		0	1	0	0	0	0
114.2		8		0	0	0	0	0	0
114.3							3	0	0
114.4							9	0	0
114.5							6	2	0
115.0	0	0	0	0	0	0	0	0	0
116.0	0	0	0	0	0	4	2	6	1
117.0	0	0	29	13	4	11	0	0	10
118.0	7	0	10	0	0	0	0	0	0
118.1							4	3	0
118.5									0
119.0	0	0	0	0	0	0	0	0	9
119.1						12	6	0	0
120.0	2	0	0	0	0	0	0	0	2
121.0	2	0	3	0	0	0	0	1	0
122.0	0	2	18	0	0	0	0	2	0
123.0	0	0	1	0	0	0	0	0	0
124.0	0	0	1	0	0	0	0	0	0
125.0	13	0	7	5	0	0	4	5	2
126.0	0	0	11	0	0	0	0	0	0
126.5								2	0
127.0	71	17	97	43	87	56	43	59	118
128.0	0	0	0	0	0	0	0	0	0
129.0	4	0	39	0	20	35	33	27	15
130.0	266	106	190	159	64	110	119	140	153
130.1							8	0	0
131.0	29	18	0	0	0	0	0	71	33
131.1		56		0	0	0	0	0	0
131.2		3		0	0	1	0	0	0
131.3					64	0	0	0	0
132.0	32	0	0	15	0	0	0	107	33
132.1							8	0	0
133.0	61	0	158	0	19	149	159	0	114
134.0	6	0	0	0	0	12	6	0	0
134.1						4	0	0	0
134.2						10	0	1	0

YEAR SITE	82R	83R	82	83	84	85	86	87	88
134.5							10	0	0
135.0	38	0	12	0	0	0	0	0	0
136.0	5	0	10	0	0	0	0	7	4
137.0	5	0	0	0	0	0	0	0	1
137.1				2	0	0	0	0	0
138.0	0	0	26	14	20	24	16	16	0
138.1							2	0	0
139.0	0	0	14	12	0	0	0	7	0
139.1							9	14	0
140.0	0	0	12	0	0	0	3	5	9
140.1		1		0	0	0	0	0	0
141.0	22	0	71	24	23	0	10	44	20
141.1		3		0	0	2	0	0	0
142.0	11	0	22	0	3	0	6	7	0
143.0	0	0	2	0	0	0	0	0	0
143.5								2	0
144.0	28	0	19	0	11	0	11	17	0
144.5								1	0
145.0	25	0	24	7	0	0	0	5	35
146.0	0	0	0	17	18	0	37	50	0
147.0	0	0	32	0	0	0	0	0	0
148.0	10	0	25	0	12	33	22	62	6
149.0	36	51	71	24	1	0	30	39	6
150.0	51	56	96	58	64	52	49	42	331
151.0	36	14	53	8	23	41	78	80	22
152.0	29	20	41	0	39	42	32	85	55
153.0	28	13	6	13	5	0	24	74	9
154.0	0	0	18	0	19	20	0	44	12
154.1					2	0	0	0	0
155.0	0	7	29	27	1	0	65	55	0
155.1						17	0	63	18
156.0	14	31	47	0	9	2	18	61	0
156.1	0	14	0	54	0	0	0	0	0
157.0	145	129	145	120	98	102	175	151	132
157.1							1	0	0
158.0	2	0	0	0	1	18	0	0	0
159.0	6	0	0	0	0	0	0	9	0
160.0	30	21	23	43	8	0	45	8	34
160.05							3	0	0
160.1		2		0	1	0	0	5	0
161.0	7	21	49	0	22	13	0	0	3
161.1						9	0	32	0
161.2						6	0	2	0
162.0	100	76	133	108	85	101	103	105	59
162.1		1		0	0	0	0	0	0
163.0	0	0	0	7	0	0	0	0	0
164.0	0	5	17	34	35	38	22	29	54
164.7									41
165.0	33	0	28	34	8	68	20	2	20
166.0	41	36	138	0	49	82	113	122	149

YEAR SITE	82R	83R	82	83	84	85	86	87	88
167.0	0	58	28	45	136	73	169	69	67
167.8									0
168.0	0	0	1	0	0	0	0	0	0
169.0	39	31	37	40	31	32	28	17	22
170.0	0	0	1	0	0	0	0	0	1
170.1							1	0	0
171.0	0	33	8	3	0	0	0	0	0
172.0	0	19	120	83	63	65	0	136	144
173.0	23	53	12	0	0	4	0	0	12
174.0	80	0	23	0	18	0	5	0	0
175.0	76	46	53	26	0	35	26	24	26
176.0	25	31	3	1	20	0	0	23	7
177.0	60	5	71	16	90	0	87	48	5
178.0	43	43	83	74	10	92	116	12	10
179.0	0	0	36	0	0	3	0	59	13
180.0	21	20	44	22	0	21	5	2	22
181.0	7	17	0	0	0	0	0	1	1
182.0	0	0	3	0	0	0	2	0	0
182.1						3	1	0	0
182.2							4	3	3
182.7									1
183.0	0	4	1	0	0	0	0	0	0
184.0	0	1	1	0	0	0	0	1	1
185.0	0	1	3	0	19	12	10	23	22
186.0	12	0	9	0	0	0	2	0	0
186.1							1	0	0
187.0	4	2	0	0	1	8	0	0	0
188.0	50	39	70	95	109	57	106	106	111
189.0	0	0	0	0	0	0	0	3	0
190.0	43	0	23	53	71	0	42	61	69
191.0	0	0	0	0	0	0	0	12	0
191.1							6	5	2
192.0	9	29	10	20	0	0	11	7	5
193.0	0	24	0	0	0	0	0	9	5
193.1						5	0	0	0
194.0	20	33	45	29	6	41	54	38	1
194.1							1	0	0
195.0	0	26	34	40	12	0	2	0	0
195.1		20		0	0	0	0	0	146
196.0	0	0	7	0	21	33	29	47	0
196.1						19	15	33	0
197.0	57	11	104	84	38	122	121	72	50
197.1		80		0	0	100	0	0	59
198.0	23	36	118	0	125	0	90	3	0
198.1							25	0	0
199.0	0	25	0	45	0	0	0	131	27
200.0	0	0	7	58	0	0	0	0	0
200.1						24	0	0	0
201.0	30	34	0	5	0	0	19	38	68
201.1						3	0	0	0

YEAR SITE	82R	83R	82	83	84	85	86	87	88
202.0	0	11	25	35	11	23	58	45	23
202.1					0	0	0	0	0
203.0	0	0	0	0	1	67	0	0	0
204.0	0	13	0	1	0	0	11	0	0
205.0	283	154	197	125	311	76	147	328	122
206.0	0	0	0	7	0	0	24	5	41
207.0	0	8	60	17	40	39	41	74	31
208.0	0	0	7	0	0	0	0	0	0
209.0	0	8	0	58	47	53	63	30	65
210.0	0	0	0	0	0	0	0	0	18
210.8								13	0
211.0	0	0	0	0	0	0	0	0	0
212.0	0	0	0	0	0	0	0	0	0
213.0	40	71	85	85	64	99	86	123	105
214.0	0	0	8	3	0	0	0	1	0
215.0	12	5	10	3	20	13	24	24	13
215.1					1	0	0	0	0
216.0	0	0	1	0	5	0	4	0	0
216.1							1	0	0
217.0	36	61	88	103	143	54	69	153	113
217.1					2	0	0	0	0
218.0	115	101	112	118	7	185	183	85	72
218.1		24		0	0	0	0	0	0
219.0	5	19	4	19	8	0	9	11	0
219.1						1	1	0	0
219.2						1	0	0	0
219.3						4	0	0	0
220.0	0	32	88	30	47	49	19	70	66
221.0	465	634	566	583	831	505	589	717	762
222.0	11	0	0	0	0	0	9	0	0
223.0	0	0	0	0	0	3	0	0	0
224.0	0	0	509	86	508	200	300	204	61
225.0	543	400	516	214	172	453	309	649	276
226.0	10	0	0	66	0	0	0	0	0
226.1				21	0	0	0	0	0
226.2				72	0	0	0	0	0
226.3				12	0	0	0	0	0
227.0	0	0	34	0	0	0	0	0	0
228.0	29	0	0	0	0	0	0	3	0
229.0	0	0	0	0	0	0	0	0	0
230.0	7	0	1	0	0	124	0	2	0
231.0	38	73	101	0	0	0	22	101	155
232.0	3	64	64	0	66	0	90	0	0
232.1					11	0	0	28	0
232.2					3	0	70	0	0
232.3							1	17	0
233.0	24	0	31	0	3	0	0	2	0
234.0	13	0	0	0	0	0	0	0	1
235.0	17	0	0	0	0	0	0	0	0
236.0	19	11	1	0	0	0	0	0	1

YEAR SITE	82R	83R	82	83	84	85	86	87	88
237.0	0	0	0	0	0	0	0	0	0
238.0	12	0	4	0	0	20	11	1	2
239.0	0	0	1	0	0	24	0	20	46
240.0	0	0	0	0	0	0	0	0	0
240.1		3		0	0	0	0	0	0
241.0	122	28	86	105	135	0	32	0	0
242.0	2	0	1	0	0	0	0	0	0
242.1		1		0	0	0	0	0	1
243.0	53	0	53	30	0	29	0	111	0
244.0	59	41	86	20	39	71	144	0	179
244.1					1	1	0	0	0
245.0	165	37	256	247	142	370	204	178	256
245.1							1	0	0
246.0	0	0	12	0	8	5	8	9	17
247.0	5	3	0	0	0	0	3	0	3
247.1									13
248.0	338	289	196	215	0	283	280	431	289
248.1					72	0	0	0	0
248.5							30	15	0
249.0	27	31	136	44	47	76	35	14	17
249.1						1	0	0	5
249.5							22	0	0
250.0	3	0	1	0	0	0	0	0	0
251.0	106	36	115	0	99	71	88	82	58
252.0	0	0	0	0	0	0	1	12	0
253.0	0	0	11	0	0	1	4	12	3
254.0	9	0	1	0	0	0	0	0	1
255.0	0	0	8	0	0	18	17	14	0
255.1					16	0	0	0	0
256.0	0	0	8	0	0	0	0	3	0
257.0	29	16	47	13	38	35	15	28	17
257.8									3
258.0	2	0	0	0	0	0	0	1	0
259.0	0	0	0	0	0	0	0	0	0
259.1							1	0	0
260.0	2	0	0	0	0	0	0	0	0
260.1							1	0	0
261.0	0	0	0	0	0	0	0	0	0
261.1		10		0	0	7	1	0	0
261.2		8		6	0	0	18	8	3
262.0	119	183	127	140	93	188	258	239	226
263.0	31	0	0	0	0	0	0	0	25
263.1						21	0	1	0
263.2						8	0	3	15
264.0	2	0	0	0	26	0	0	12	0
264.1							12	24	26
265.0	0	0	0	0	1	0	0	0	0
265.1						5	4	4	0
266.0	2	0	8	0	0	0	0	0	0
267.0	5	0	0	0	3	0	0	0	0

YEAR SITE	82R	83R	82	83	84	85	86	87	88
268.0	8	16	0	0	5	14	15	33	37
268.1				2	0	4	0	0	0
269.0	12	0	13	0	0	0	0	0	0
270.0	0	0	0	0	0	1	0	0	0
270.1		3		0	0	0	1	0	0
270.2		1		0	0	0	0	0	0
271.0	28	0	8	0	10	21	14	18	11
272.0	1	0	12	6	14	0	0	0	0
272.1					1	0	0	0	0
273.0	70	34	49	24	6	4	10	23	0
273.1							1	0	0
274.0	13	22	18	0	3	0	4	33	25
274.1		1		0	3	17	0	0	0
275.0	0	0	20	17	10	0	12	12	3
276.0	3	0	0	0	0	21	0	0	6
276.1							29	24	16
277.0	27	0	51	0	15	36	37	20	0
277.1		3		0	0	0	1	0	0
278.0	0	0	0	0	0	0	0	0	0
279.0	0	0	1	0	0	0	0	0	0
280.0	9	3	0	0	0	0	0	0	0
281.0	0	0	21	0	15	57	32	20	24
282.0	11	31	0	50	48	0	0	11	21
282.1						3	2	3	7
283.0	10	0	0	0	0	0	0	0	0
283.1					1	0	1	0	1
283.2						10	12	12	26
284.0	24	14	29	0	0	14	5	9	12
284.1				5	0	0	0	0	0
284.2					3	0	0	0	0
284.3					1	0	0	0	0
285.0	0	0	0	0	0	0	0	0	0
285.1					16	0	0	0	0
285.2					10	2	0	0	0
285.4							4	0	0
286.0	0	0	0	0	0	0	0	0	0
286.5							3	0	0
287.0	4	24	64	39	67	46	49	51	54
287.1		3		0	0	0	0	0	3
287.2							1	0	0
287.3								2	0
288.0	0	0	2	0	0	0	10	2	0
289.0	10	2	9	0	0	0	0	0	4
290.0	31	34	0	27	0	26	0	34	22
291.0	0	0	1	0	9	3	7	0	14
291.1					1	0	0	0	0
292.0	1	0	0	0	0	0	0	1	1
292.1								2	0
293.0	18	0	0	0	0	0	0	0	0
293.5								7	9

YEAR SITE	82R	83R	82	83	84	85	86	87	88
294.0	0	21	4	0	8	26	14	15	0
294.1					5	0	0	0	0
295.0	0	0	40	0	0	20	0	0	0
296.0	35	30	52	34	79	44	69	115	77
296.1							2	0	0
297.0	0	0	2	0	0	0	0	1	2
297.1		3		2	35	0	0	1	0
298.0	26	1	0	0	0	0	21	26	4
298.1		23		14	0	13	48	48	33
298.2						4	0	0	0
299.0	10	9	25	0	36	21	0	22	0
299.1					29	2	0	0	1
300.0	0	0	1	0	0	0	0	2	0
300.1							1	0	0
301.0	1	0	0	0	0	0	0	3	5
301.1							23	0	0
302.0	87	55	125	74	67	70	62	59	56
303.0	10	17	4	2	13	0	6	6	4
304.0	26	18	39	0	0	18	17	30	23
305.0	29	6	45	0	0	53	41	8	5
306.0	0	0	1	0	0	0	0	0	0
307.0	131	73	109	46	51	164	71	159	75
308.0	0	0	0	0	72	0	74	0	0
309.0	18	37	0	44	45	0	43	0	25
310.0	3	0	0	0	0	0	0	0	0
310.1						1	0	0	0
311.0	8	10	0	0	6	0	18	1	0
312.0	6	5	0	0	7	0	17	10	21
312.1					27	0	0	0	0
313.0	27	17	0	15	0	54	27	79	22
313.1							9	0	0
314.0	4	0	0	0	0	0	0	0	0
315.0	39	31	0	25	33	48	41	55	70
315.1						4	0	0	0
315.2								9	0
316.0	27	2	0	0	0	35	28	16	0
316.1		1		0	0	0	0	3	0
317.0	13	0	0	0	0	0	0	0	5
317.1						3	0	0	0
318.0	6	14	15	15	19	19	16	22	28
318.1							25	0	0
319.0	5	2	0	0	0	0	0	7	0
319.1						4	0	0	0
320.0	42	40	57	49	69	0	56	36	0
321.0	0	4	4	0	0	14	15	23	32
322.0	0	0	0	0	0	0	0	0	0
323.0	25	0	17	0	0	28	0	23	1
324.0	36	53	0	0	14	15	0	7	17
324.1					2	0	0	0	0
324.5									9

YEAR	82R	83R	82	83	84	85	86	87	88
SITE									
325.0	0	0	0	27	2	0	25	4	0
325.1							35	35	32
325.2								15	0
326.0	63	48	84	46	86	74	145	74	95
327.0	33	48	0	28	0	0	22	1	20
327.1						24	0	57	37
328.0	20	0	0	27	49	33	16	23	0
329.0	2	0	0	0	1	0	46	57	27
329.1							2	0	0
329.5									1
330.0	25	16	32	21	0	37	32	42	23
331.0	0	0	0	0	1	0	0	0	0
331.1								11	9
332.0	33	83	176	89	76	54	94	103	76
332.1								14	0
332.5							7	0	0
333.0	35	0	33	0	60	43	35	50	27
334.0	19	0	45	33	36	19	73	11	0
335.0	0	36	4	0	0	0	0	0	0
335.1						5	0	0	0
335.2								1	0
336.0	12	6	12	12	19	3	6	9	10
336.05								11	0
336.1		10		0	0	0	0	9	0
336.2						1	0	0	0
337.0	33	13	0	25	24	37	19	32	35
337.1		2		0	0	0	0	0	0
338.0	9	43	48	52	48	25	37	26	74
338.1						1	0	0	0
338.2								13	6
339.0	28	11	38	22	7	0	0	0	0
339.1						17	12	0	0
340.0	0	0	0	8	18	0	13	7	14
340.05							1	0	0
340.1					14	1	23	16	0
341.0	36	66	49	50	69	73	98	71	41
342.0	29	23	32	0	0	0	0	0	0
342.1				7	0	25	0	23	24
343.0	11	31	27	0	2	24	24	34	9
343.1						20	0	0	0
344.0	17	19	18	15	20	22	19	11	13
344.1								3	0
345.0	0	0	31	0	0	0	0	0	0
345.05							13	0	0
345.1							24	5	0
345.2								12	25
345.3								21	0
346.0	0	41	0	26	18	0	0	0	0
347.0	0	21	0	13	0	0	0	0	17
348.0	0	27	0	31	28	33	0	33	43

YEAR SITE	82R	83R	82	83	84	85	86	87	88
349.0	44	28	51	26	24	20	16	24	36
349.1						7	16	0	0
350.0	0	20	27	18	9	25	4	5	0
351.0	2	0	0	0	0	0	0	0	18
352.0	85	123	183	105	107	120	138	106	151
352.1		1		0	0	0	29	0	39
352.2						20	24	14	26
353.0	23	11	55	22	0	39	17	0	0
354.0	0	34	30	44	29	30	46	46	46
355.0	0	0	9	4	2	4	0	1	0
355.1						4	0	0	0
356.0	46	0	67	0	0	0	0	0	0
356.1					100	40	92	25	0
357.0	0	0	0	0	0	14	0	6	11
358.0	25	0	13	0	0	0	0	0	0
359.0	5	0	0	0	0	14	4	1	0
359.1						1	0	0	0
360.0	58	0	0	0	0	0	44	0	0
361.0	97	186	0	0	0	0	0	0	0
362.0	21	78	9	0	0	0	0	239	0
363.0	354	279	583	333	784	460	401	510	627
364.0	0	12	13	0	1	0	0	0	13
365.0	0	0	52	0	0	0	0	24	154
366.0	0	240	16	0	0	40	0	11	4
366.1				86	0	1	142	0	0
367.0	0	0	10	0	0	1	0	0	0
367.1							21	0	7
367.2								23	0
368.0	43	14	0	0	0	1	0	0	0
368.1						33	0	13	22
369.0	11	8	0	0	1	13	0	0	0
369.1						1	0	0	0
370.0	0	0	0	0	0	3	0	0	0
371.0	25	19	14	0	0	0	9	11	9
372.0	3	0	0	0	0	0	0	0	0
372.1								9	16
373.0	101	104	172	117	138	159	133	206	146
373.1		34		0	0	26	0	0	26
374.0	29	0	76	0	0	32	23	0	43
375.0	10	0	1	4	0	0	0	0	0
376.0	1	0	0	0	0	0	4	0	0
377.0	4	0	0	0	0	0	0	0	0
378.0	5	1	0	0	0	2	0	0	0
378.1		2		0	0	0	0	0	0
379.0	1	2	0	0	3	0	0	4	0
380.0	15	0	0	0	0	0	0	0	0
380.1						4	0	0	0
380.2							2	0	0
381.0	32	39	46	46	16	42	0	55	73
381.1		282		0	410	441	0	0	0

YEAR	82R	83R	82	83	84	85	86	87	88
SITE									
381.2					81	0	0	0	0
381.3						15	0	0	0
382.0	325	192	483	423	0	0	354	452	1060
383.0	0	492	0	457	464	426	281	830	316
384.0	518	1	269	7	12	5	15	14	22
385.0	146	117	131	96	55	148	76	144	88
386.0	0	0	0	0	9	0	0	0	0
386.1						1	0	0	0
387.0	0	0	0	0	0	0	0	0	0
388.0	0	0	0	0	0	0	0	0	0
389.0	0	0	0	0	0	0	0	0	0
390.0	0	0	21	48	57	24	55	14	35
390.1						14	0	0	0
391.0	0	0	0	0	0	0	0	0	0
392.0	0	0	0	0	0	0	10	13	0
393.0	20	0	0	21	0	40	22	0	18
394.0	0	22	0	0	0	7	3	0	0
395.0	0	10	0	32	21	23	20	36	36
395.1							1	0	0
396.0	0	0	0	0	4	11	8	4	0
396.1						16	0	0	0
397.0	0	0	2	12	8	7	9	0	0
398.1							0	0	0
398.0	0	2	0	0	0	43	6	0	0
399.0	10	9	15	46	49	67	24	0	0
400.0	0	58	0	0	0	0	53	38	0
401.0	0	0	0	0	3	6	1	0	0
402.0	0	0	0	0	0	0	0	2	0
403.0	0	0	0	0	0	3	0	0	0
404.0	0	0	0	79	28	13	3	14	0
405.0	56	8	0	7	9	14	13	0	0
405.05									3
405.1							1	0	0
406.0	0	0	0	0	0	0	0	0	0
407.0	0	0	0	0	0	0	0	0	0
407.1							13	9	0
408.0	0	0	0	0	0	0	1	0	0
409.0	0	0	0	0	0	20	61	209	42
410.0	0	0	48	0	10	28	30	0	0
411.0	0	0	0	0	0	0	0	0	0
412.0	0	0	35	0	0	0	6	0	0
413.0	66	24	52	33	5	96	72	0	48
413.1		1		0	0	0	0	0	0
414.0	263	215	0	363	328	379	516	386	186
415.0	63	0	0	0	0	0	2	5	33
416.0	0	0	0	0	0	8	0	0	0
417.0	0	0	0	0	0	0	1	0	0
418.0	208	109	129	542	139	328	266	278	176
419.0	0		0	0	0	1	0	0	0
420.0	0		0	0	9	10	23	0	20

YEAR	82R	83R	82	83	84	85	86	87	88
SITE									
421.0	0	0	0	0	0	0	0	0	0
422.0	51	69	50	56	41	32	42	25	40

APPENDIX III. Harbor seal hauling sites with site descriptions as available. (SITE= site number; LOCATION= name of site; COUNTY= county of site; LAT/LONG= exact location of site; SUBST= primary type of substrate [1= extended reef, 2= offshore rock, 3= onshore rock, 4= harbor or estuary, 5= ocean sandy beach, 6= river log, 7= floats, 8= night haul out, 9= ocean rocky beach]; Subs2= secondary type of substrate; MAX= maximum number counted at site; ?= some question as to location; blanks indicate data not available).

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	SUBS2	MAX
000.1	?km N. Pt. Loma	SD	32 .	117 .	2		7
001.0	1.2km S. Pt. La Jolla	SD	3250.56	11716.90	1		0
002.0	0.6km S. Pt. La Jolla	SD	3250.87	11716.68	1		12
003.0	0.5km S. Pt. La Jolla	SD	3250.90	11716.62	2		24
004.0	Mugu Lagoon	V	3406.11	11904.17	4		120
005.0	.1km E.Std. Oil P. Carpinteria	SB	3423.11	11930.33	5	1	116
006.0	.3km W.Std. Oil P. Carpinteria	SB	3423.13	11930.47	2		70
007.0	Carpinteria St. Beach	SB	3423.36	11931.09	1		53
008.0	Sand Pt.	SB	3423.60	11932.30	2		11
009.0	Moore Mesa 2km E. Goleta River	SB	3425.34	11947.82	2		70
010.0	1.2km W. Ellwood Oil Pier	SB	3426.38	11956.24	5		205
010.1	N. Ellwood	SB	3427.38	12028.03	2		1
010.8	Gov't Pt.	SB	3427.	12028.	1		3
011.0	0.8km E. Pt. Conception	SB	3426.53	12027.50	5		554
011.1	Lighthouse	SB	3426.08	12027.76	5		213
012.0	N. Pt. Conception	SB	3427.36	12028.01	2		38
013.0	N. Pt. Conception	SB	3429.	12028.	1		19
013.1	1km S. Sudden	SB	3431.70	12034.79	2		12
014.0	Sudden	SB	3432.	12034.	3		13
014.1	Sudden/Rocky Pt.	SB	3433.34	12036.37	5		31
014.2	S of Rocky Point	SB	3433.42	12037.32	1		122
014.4	1.2km S. Rocky Pt.	SB	3433.47	12037.30	5		290
014.8	0.75km S. Rocky Pt.	SB	3433.50	12037.49	5		98
015.0	1.0 Km S. Rocky Pt.	SB	3433.52	12037.59	3	1	247
015.1	0.5 km S. of Rocky Pt.	SB	3433.68	12037.59	3		228
015.2	0.3km S Rocky Pt.	SB	3433.	12037.	1		119
016.0	1.0 Km S. Rocky Pt.	SB	3433.81	12037.72	3	5	113
017.0	S. Pt. Arguello	SB	3434.	12038.	1		57
017.1	S. Pt Arguello	SB	34	120	3		18
018.0	S. Purisima Pt.	SB	3444.	12037.	3		127
019.0	S. Purisima Pt.	SB	3444.77	12037.64	1		100
019.1	S. Purisima Pt.	SB	3444.77	12037.64	2		4
019.2	S. of Purisima Pt.	SB	3445.13	12037.67	2		13
020.0	Purisima Pt.	SB	3445.35	12038.20	1		43
021.0	Pt. Sal Area	SB	3452.05	12036.82	3		6
021.1	Pt. Sal Area	SB	3554.	12040.	3		10

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	SUBS2	MAX
021.2	Pt Sal Area	SB	3554.	12040.	3		26
021.3	Pt. Sal Area	SB	3554.	120 .	1		2
021.5	Pt. Sal Area	SB	3554.19	12039.85	1		8
022.0	N. Pt. Sal	SB	3554.31	12040.01	3		67
023.0	Mussel Pt.	SB	3455.76	12040.04	1		1
023.1	1.5km N. Pismo Beach Pier	SLO	3508.90	12038.90	3	2	34
024.0	1.7km N. Pismo Beach P.	SLO	3509.10	12039.83	2		58
025.0	Shell Beach (O.R. N. Br. Is.)	SLO	3509.14	12039.86	2		138
026.0	0.1km N. of site #25-O.R.at lt.	SLO	3509.15	12040.	1		51
026.1	E. Mallagh Landing	SLO	3110.	12042.	1		22
027.0	Pirates Cove (Mallagh Landing)	SLO	3511.07	12042.86	2		29
028.0	Fossil Pt.	SLO	3510.61	12042.45	2		20
029.0	0.8km S. Pecho Rock	SLO	3510.	12049.	1		2
030.0	Pecho Rock	SLO	3510.75	12048.95	2		2
031.0	Deer Canyon (Outside S)	SLO	3511.32	12048.37	1		67
031.1	Vic. Deer Canyon	SLO	3510.74	12046.06	1		45
032.0	Deer Canyon (Inside Cove)	SLO	3511.29	12048.74	1		4
032.1	Red Tail Reef	SLO	3511.	1204 .	1		52
033.0	0.9km N. Deer Canyon	SLO	3511.15	12047.97	1		22
033.1	0.95km N. Deer Canyon	SLO	3511.55	12049.27	3		16
033.2	0.9 km N. Deer Canyon	SLO	3511.41	12049.89	1		28
034.0	1.0km N. Deer Canyon	SLO	3511.56	12049.28	3		20
034.1	0.1 km N. Deer Canyon	SLO	3511.	12049.	2		38
035.0	1.2km N. Deer Canyon	SLO	3511.58	12049.26	2		59
035.1	1.3km N. Deer Canyon	SLO	3511.68	12049.50	1		3
036.0	1.5km N. Deer Canyon	SLO	3511.73	12049.60	1		42
037.0	2.0km N. Deer Canyon	SLO	3511.81	12049.87	1		61
038.0	2.1km N. Deer Canyon	SLO	3511.80	12049.99	1		68
039.0	2.4km N. Deer Canyon	SLO	3511.90	12050.11	1	3	178
039.05	N of China Shack	SLO	3512.01	12050.37	1		15
039.1	N. China Shack	SLO	3512.09	12050.42	1		9
040.0	0.4km S. Diablo Cyn Har.	SLO	3512.	12052.	2		126
040.1	? Km N. Diablo Nuclear Fac.	SLO	3512.	12052.	2		1
041.0	0.6km N. Lion Rock	SLO	3513.44	12052.56	2		57
041.1	?km N. Lion Rock	SLO	3513.	12052.	5		94
041.2	N. Lion Rock	SLO	3513.81	12052.48	1		73
042.0	1.8km N. Lion Rock (opp.Res.)	SLO	3513.94	12052.66	1		36
042.1	N. Lion Rock	SLO	3514.28	12053.05	3		35
043.0	2.3km N. Lion Rock	SLO	3514.15	12053.04	2		21
043.1	1.0km N. Pt. Buchon	SLO	3515.00	12053.58	5		13
044.0	0.8km S. Islay Creek	SLO	3516.	12053.	2		24
045.0	0.5km S. Hazard Cyn.	SLO	3517.34	12053.82	1		22
046.0	Morro Bay (Inside Harbor)	SLO	3520.39	12050.59	4		41
046.1	N. Whale Rock	SLO	3520.30	12051.10	2		1
047.0	0.2km W. Cayucos Pier	SLO	3526.91	12054.44	2		13
048.0	1.0km W. Cayucos Pier	SLO	3526.84	12054.59	1		22

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	SUBS2	MAX
049.0	1.3km W. Cayucos Pier	SLO	3526.87	12055.25	1		95
050.0	0.1km W. Black Rock	SLO	3526.87	12055.50	2		86
051.0	0.9km E. Cayucos Pt.	SLO	3526.81	12055.80	1		62
052.0	0.2km E. Cayucos Pt.	SLO	3526.79	12056.22	1		126
053.0	Cayucos Pt.	SLO	3526.76	12056.37	1		197
054.0	0.2km W. Cayucos Pt.	SLO	3526.77	12056.47	1		65
055.0	0.4km W. Cayucos Pt.	SLO	3526.76	12056.66	1		101
055.1	W. Cayucos Pt.	SLO	3526.73	12056.36	1		75
055.2	W. of Cayucos Point	SLO	3526.76	12056.22	1		12
055.3	S of Cayucos Point	SLO	3526.	12056.	2		1
055.5	S of Cayucos Point	SLO	3526.80	12056.40	2		13
056.0	2.1km NW Cayucos Pt.	SLO	3527.76	12057.66	1		50
056.1	?km NW Cayucos Pt.	SLO	3527.	12057.	1		39
056.2	NW Cayucos Pt.	SLO	3526.92	12056.76	1		33
057.0	0.4km SE Villa Creek	SLO	3527.	12058.	1		46
057.1	? km W. Villa Cr.	SLO	3527.	12100.	1		30
057.2	? Km W. Villa Cr.	SLO	3527.	12100.	3		14
058.0	Point Estero	SLO	3527.	12100.	1		67
058.1	Pt. Estero area	SLO	3527.	12100.	1		51
058.5	S. China Shack	SLO	3528.40	12100.60	1		18
058.7	S of China Shack	SLO	3528.67	12100.89	1		21
058.9	S of China Shack	SLO	3528.67	12100.89	1		43
059.0	0.4km S. China Shack	SLO	3529.00	12101.03	1		17
060.0	0.3km S. China Shack	SLO	3528.87	12101.39	1		11
061.0	0.1km S. China Shack	SLO	3529.21	12101.56	2		23
061.8	China Shack	SLO	352 .	12101.	3		7
062.0	0.1km N. China Shack	SLO	3529.06	12101.44	1		17
063.0	0.4km N. China Shack	SLO	3529.06	12101.58	1		19
064.0	0.5km N. China Shack	SLO	3529.08	12101.65	1		27
064.5	0.6 km N. China Shack	SLO	35 .	121 .	2		2
065.0	0.7km N. China Shack	SLO	3529.18	12101.71	1		43
065.1	? km n. China Shack	SLO	3529.	12103	1		1
065.2	N. China Shack	SLO	3529.42	12101.66	2		51
066.0	1.9km S. Radar Station	SLO	3530.33	12103.05	1		51
066.1	S. Radar Station	SLO	3530.50	12103.00	3	1	45
066.2	?km S. Radar Station	SLO	3530.	12103.	3		1
067.0	0.4km S. Radar Station	SLO	3530.89	12103.82	2		26
068.0	1.2km N. Radar Station	SLO	3531.	12104.	1		15
068.1	Vicinity White Rk.	SLO	3531.83	12104.65	1		15
068.15	Vicinity White Rock	SLO	3531.	12104.	1		21
068.2	Vicinity White Park	SLO	3531.	12104.	1		13
068.3	S. of Vicinity White Pt	SLO	3531.	12104.	2		1
069.0	Castle Inn,Cambria-Opp.C. Rock	SLO	3534.67	12106.80	2		15
069.1	N. end San Simeon Beach	SLO	3535.67	12106.80	2		15
070.0	0.9km N. San Simeon Cr.	SLO	3536.05	12107.86	1		28
070.1	1.0km N. San Simeon Cr.	SLO	3536.11	12108.58	1		15

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	SUBS2	MAX
071.0	1.3km N. San Simeon Cr.	SLO	3536.14	12108.07	1		101
071.1	N. San Simeon Cr	SLO	3536.18	12108.11	2		2
072.0	1.6km N. San Simeon Cr.	SLO	3536.22	12108.43	1		68
073.0	1.8km N. San Simeon Cr.	SLO	3536.29	12108.58	1		13
073.1	Pico Creek Cove	SLO	3537.04	12109.01	2		22
074.0	0.6km E. San Simeon Pier	SLO	3538.47	12110.80	2		68
074.1	W San Simeon Pt	SLO	3538.39	12110.75	1		2
075.0	1.3km W. San Simeon Pt.	SLO	3538.40	12111.71	1		32
075.1	E. Adobe Creek	SLO	3539.11	12113.22	1		2
076.0	0.4km W. Adobe Creek	SLO	3539.15	12113.22	1		90
076.1	1.0km W. Adobe Creek	SLO	3539.20	12113.79	2		40
077.0	1.6km W. Adobe Creek	SLO	3539.30	12114.29	1		17
077.1	1.7km W. Adobe Creek	SLO	3539.15	12114.45	1		4
078.0	1.8km W. Adobe Creek	SLO	3539.24	12114.19	2		104
079.0	2.0km W. Adobe Creek	SLO	3539.65	12114.91	1		64
079.1	E. Piedras Blancas Lthouse	SLO	3539.	12115.	2		4
080.0	2.7km E Piedra Blancas Lthouse	SLO	3539.57	12115.23	1		33
080.1	2.5 km E. Piedras Blancas	SLO	3539.94	12116.81	1		16
081.0	2.3km E Piedra Blancas Lthouse	SLO	3539.75	12115.48	2		18
081.1	? km E. Piedras Blancas	SLO	3539.	12115.	1		8
081.2	? km E. Piedras Blancas	SLO	3539.	12115.	1		20
081.3	Pt. Piedras Blancas	SLO	3539.94	12116.81	1		14
082.0	Offshore Pt. Piedras Blancas	SLO	3539.76	12116.62	2		70
083.0	Beach at Pt. Piedras Blancas	SLO	3539.86	12116.56	1		58
084.0	Harleck Castle Rock Area	SLO	3542.56	12112.40	1		14
085.0	La Cruz Rock	SLO	3542.34	12118.27	2		122
086.0	0.3km S. Pt. Sierra Nevada	SLO	3542.68	12118.82	2		68
086.8	2 km S. Breaker Pt.	SLO	3543.90	12118.60	1		15
087.0	0.9km S. Breaker Pt.	SLO	3544.28	12118.72	2		138
087.1	N. Breaker Pt.	SLO	3544.15	12119.07	1		0
088.0	N. Ragged Pt.	SLO	3546.	12119.	1		5
089.0	N. Ragged Pt.	SLO	3547.	12120.	2		20
090.0	1.0km S. Salmon Creek	M	3548.	12121.	2		15
091.0	1.6km S. Salmon Creek	M	3548.30	12121.28	1		1
091.1	Salmon Creek area	M	3548.	12121.	2		21
092.0	0.3km S. Salmon Creek	M	3548.36	12121.59	2		12
093.0	0.5km N. Salmon Creek	M	3548.58	12121.86	2		6
093.1	0.7km N. Salmon Creek	M	3549.08	12122.77	2		9
094.0	Redwood Gulch	M	3550.02	12123.74	2		2
094.1	Vicinity Redwood Gulch	M	3550.	12123.	2		10
094.2	Vicinity Redwood Gulch	M	3550.10	12123.60	2		5
094.3	?km SE Alder Creek	M	3551.	12124.	2		1
094.4	S of Alder Creek	M	3551.	12124.	2		6
094.5	S of Alder Creek	M	3551.	12124	2		1
095.0	0.3km S. Alder Creek	M	3551.37	12124.86	2		15
096.0	0.8km N. Alder Creek	M	3551.49	12125.01	2		1

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	SUBS2	MAX
096.1	1.0km N. Alder Creek	M	3551.70	12125.70	2		14
096.2	?km N. Alder Creek	M	3551.	12125.	2		2
096.3	?km N. Alder Creek	M	3551.	12125.	2		1
096.4	?km N. Alder Creek	M	3551.	12125.	2		3
097.0	1.3km N. Alder Creek	M	3551.75	12125.88	2		22
098.0	Bird Rock (Gorda Rock)	M	3552.38	12127.04	2		59
099.0	0.6km S. Cape San Martin	M	3553.08	12127.59	5		5
099.1	Vicinity Cape San Martin	M	3552.75	12121.06	2		7
099.2	Vicinity Cape San Martin	M	3552.84	12127.25	2		6
099.5	N of White Bridge	M	3553.89	12027.91	2		3
100.0	1.5km S. Plaskett Rock	M	3554.59	12128.04	2		9
101.0	0.7km S. Prewitt Creek	M	3555.69	12128.29	2		25
102.0	0.4km S. Prewitt Creek	M	3555.69	12128.29	2		44
102.1	S.Prewitt Creek	M	3556.	12128.	2		2
103.0	0.7km N. Prewitt Creek	M	3556.47	12128.64	2		1
103.8	?km S. Wild Cattle Creek	M	3557.	12129.	2		9
104.0	0.1km S. Wild Cattle Cr.	M	3557.43	12129.02	2		7
104.1	S Wild Cattle Cr	M	3557.	12129.	2		3
104.2	E of Wild Cattle Cir	M	3558.	12130	2		1
104.3	N of Wild Cattle Cr	M	3559.	1213 .	2		1
105.0	1.0km E. Lopez Point	M	3600.87	12132.88	2		6
105.1	E of Lopez Point	M	3600.	12132.	2		5
106.0	0.1km E. Lopez Point	M	3601.15	12133.96	2		1
106.1	?S Lopez Point	M	3601.	1213 .	2		1
107.0	0.1km W. Lopez Point	M	3601.19	12134.03	1		34
107.1	W Lopez Point	M	3601.	12134.	2		5
108.0	0.7km S. Vicente Creek	M	3602.30	12134.84	2		15
109.0	Vicente Creek	M	3602.68	12135.10	2		10
110.0	.6km N. Big Creek	M	3604.35	12136.35	5	9	208
111.0	1.0km S. Dolan Rock	M	3604.66	12136.62	2		25
112.0	0.6km S. Dolan Rock	M	3604.75	12136.87	2		43
113.0	Dolan Rock	M	3605.	12137.	2		37
114.0	0.2km N. Rat Creek	M	3605.61	12137.23	2		71
114.1	Rat Creek Area	M	3605.	12137.	2		3
114.2	?km N. Rat Creek	M	3605.	12137.	3		8
114.3	N Rat Creek	M	3605.	12137.	2		3
114.4	S of Lime Creek	M	3605.	12137.	2		9
114.5	Lime Creek	M	3606.	12138.	2		6
115.0	0.3km S. Lime Creek	M	3607.10	12137.94	2		46
116.0	0.4km S. Anderson Canyon	M	3608.72	12139.87	2		6
117.0	N. Anderson Canyon	M	3609.	12140.	2		29
118.0	0.1km S. McWay Rocks	M	3609.80	12140.62	2		13
118.1	S. McWay Rocks	M	3609.	12140.	2		4
118.5	S of Seaview Shoals	M	3529.68	12040.87	2		3
119.0	McWay Rocks	M	3609.80	12140.67	2		9
119.1	Vicinity Mcway Rks.	M	3609.	12140.	1		12

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	SUBS2	MAX
120.0	0.3km N. McWay Rocks	M	3609.95	12140.77	2		2
121.0	1.2km S. Partington	M	3609.91	12141.20	2		3
122.0	0.6km S. Partington Creek	M	3610.11	12141.56	2		18
123.0	0.8km S. Torre Canyon	M	3611.24	12142.46	2		4
124.0	La Fler Canyon	M	3611.98	12143.70	2		1
125.0	0.1km N. La Fler Canyon	M	3611.82	12143.64	2		13
126.0	0.8km N. La Fler Canyon	M	3612.	12144.	3		11
126.5	Grimes Point	M	3612.16	12144.41	2		2
127.0	2.7km S. Pfeiffer Point	M	3613.28	12146.55	1	5	118
128.0	Cooper Point	M	3614.	12150.	2		1
129.0	2.4km N. Cooper Point	M	3615.75	12150.72	2		42
130.0	1.7km N. Big Sur River	M	3617.15	12152.56	1		266
130.1	Pt. Sur Lighthouse	M	3617.	12153.	1		8
131.0	1.6km S. Pt. Sur Lthouse	M	3617.96	12153.24	2		71
131.1	1.0km S. Pt. Sur Lthouse	M	3617.	12153.	1		56
131.2	1.0km S. Pt. Sur Lthouse	M	3617.	12153.	2		3
131.3	?km S. Pt. Sur Lighthouse	M	3617.	12153.	2		64
132.0	1.2km S. Pt. Big Sur Lthouse	M	3618.11	12153.51	1		107
132.1	S. Big Sur Lighthouse	M	3618.	12153.	1		8
133.0	1.1km S. Pt. Big Sur Lthouse	M	3618.17	12153.35	2		159
134.0	0.7km S. Hurricane Pt.	M	3621.10	12154.09	1		12
134.1	? km S Hurricane Pt.	M	3621.	12154.	2		4
134.2	? km S Hurricane Pt.	M	3621.	12154.47	2		10
134.5	S of Hurricane Point	M	3621.	12154.	3		10
135.0	Castle Rk. (Bixby Ldg.)	M	3622.44	12154.35	5		38
136.0	0.5km N. Palo Colorado Canyon	M	3624.14	12154.70	2		10
137.0	0.8km S. Soberanes Point	M	3626.59	12155.43	2		5
137.1	Soberanes Pt. Area	M	3626.	121 .	1		2
138.0	Soberanes Point	M	3626.59	12155.43	2		26
138.1	N. Soberanes Pt.	M	3627.	12155.	2		2
139.0	0.9km S. Malpaso Creek	M	3628.37	12156.25	2		14
139.1	S. Malpaso Creek	M	3628.66	12156.32	3		14
140.0	Yankee Point Cove	M	3629.29	12156.62	2		19
140.1	Yankee Point	M	3628.66	12156.32	1		1
141.0	Yankee Point	M	3628.66	12156.32	3		71
141.1	Yankee Point	M	3629.	12156.	3		3
142.0	Bird Island (Pelican Point)	M	3630.56	12156.51	2		31
143.0	0.3km N. Bird Island	M	3630.40	12156.63	2		2
143.5	Devil's Cauldron	M	3631.08	12156.92	2		2
144.0	Headland Cove	M	3631.21	12156.97	3		28
144.5	Granite Point	M	3631.	12156.	3		1
145.0	Whalers Cove	M	3631.20	12156.14	2		35
146.0	The Pit, Whalers Cove	M	3631.42	12156.02	2		50
147.0	Moss Cove (Pt. Lobos Reserve)	M	3631.35	12156.04	2		48
148.0	Arrowhead Point (Outside)	M	3632.48	12155.94	1		62
149.0	Arrowhead Point (Inside)	M	3631.34	12156.74	1		71

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	SUBS2	MAX
150.0	Pescadero Rocks	M	3633.70	12156.62	2		96
151.0	.5kmN.Pescadero Pt.-Stwtr.Cove	M	3633.92	12156.97	3		80
152.0	Cypress Pt. Parking Lot South	M	3634.58	12158.36	1		85
153.0	0.1km S. Cypress Point	M	3634.75	12158.60	2		93
154.0	Cypress Point	M	3634.82	12158.62	1		58
154.1	Cypress Point	M	3634.	12158.	3		2
155.0	0.1km N. Cypress Point	M	3634.83	12158.52	1		65
155.1	0.4km N Cypress Point	M	3635.00	12157.44	2		63
156.0	0.2km N. Cypress Point	M	3634.92	12158.60	2		61
156.1	Near Fan Shell Beach	M	3635.	12157.	1		54
157.0	Seal Rock	M	3635.30	12157.90	2		175
157.1	N of Seal Rock	M	3635.57	12158.20	2		1
158.0	1.3km N. Seal Rock (Ocean Ave)	M	3635.97	12157.76	1		18
159.0	0.2km S. Point Joe	M	3637.55	12156.44	1		9
160.0	Asilomar (Arena Ave)	M	3637.60	12156.47	1		45
160.05	S. Asilomar Arena Ave	M	3637.60	12156.47	2		3
160.1	Asilomar (Arena Ave)	M	3637.89	12155.28	1		9
161.0	.5km W Lovers Pt.(Pacific Ave)	M	3637.70	12155.17	2		49
161.1	SE Lovers Pt.	M	3637.69	12155.18	2		32
161.2	Lovers Pt.	M	3637.50	12154.89	2		6
162.0	Hopkins Marine Station	M	3637.28	12154.14	1		149
162.1	Cannery Row Rock	M	3637.	12154.	2		1
163.0	Monterey Harbor (2km S Brwtr.)	M	3636.42	12153.60	2		7
164.0	Elkhorn Slough(1.6km E. Hwy 1)	M	3648.92	12146.11	4		54
164.7	Cement Ship N. Rio Del Mar	M	3657.80	12154.80	2		41
165.0	Soquel Pt.	SC	3657.20	12158.6	2		68
166.0	2.0km N. Terrance Pt.	SC	3657.04	12205.3	3		149
167.0	Table Rock	SC	3657.80	12208.10	1	5	169
167.8	N. Yellow Bank Creek	SC	3639.30	12210.50	2		1
168.0	1.2km N. Yellow Bank Creek	SC	3659.	12210.	2		29
169.0	Davenport Cement Plant.5km N.P	SC	3700.52	12212.26	3		40
170.0	El Jarro Pt.	SC	3701.50	12213.70	1		1
170.1	N El Jarro Pt.	SC	3701.24	12213.35	3		1
171.0	N. Scott Creek	SC	3703.30	12214.21	1		33
172.0	2.6km S. Greyhound Rock	SC	3703.35	12215.21	2	5	144
173.0	1.7km S. Greyhound Rock	SC	3703.93	12215.27	1		53
174.0	1.3km S. Greyhound Rock	SC	3704.04	12215.42	3		80
175.0	1.0km N. Greyhound Rock	SC	3704.97	12216.42	2		81
176.0	Ano Nuevo Pt.	SM	3706.58	12219.75	1		31
177.0	Ano Nuevo Isl.	SM	3706.55	12220.58	2	3	90
178.0	0.7km N. Ano Nuevo Pt.	SM	3706.98	12220.12	1		116
179.0	1.1km N. Ano Nuevo Pt.	SM	3707.11	12220.29	1		59
180.0	1.3km N. Ano Nuevo Pt.	SM	3707.18	12220.58	2		44
181.0	1.8km S. Franklin Pt.	SM	3708.30	12220.85	2		17
182.0	Franklin Pt.	SM	3708.93	12221.77	2		3
182.1	Vicinity Franklin Pt.	SM	3708.	12221.	1		3

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	SUBS2	MAX
182.2	N. Vicinity Franklin Pt.	SM	3709.93	12221.77	2		4
182.7	N. Franklin Pt.	SM	3710.20	12222.00	1		1
183.0	3.4km N. Franklin Pt.	SM	3710.66	12222.45	1		4
184.0	1.4km S. Pigeon Pt.	SM	3710.71	12223.16	2		1
185.0	0.4km S. Pigeon Pt.	SM	3710.93	12223.31	2		23
186.0	1.4km N. Pigeon Pt.	SM	3711.60	12224.01	1		12
186.1	N. Pigeon Pt.	SM	3711.	12224.	2		1
187.0	1.7km N. Pigeon Pt.	SM	3711.67	12224.16	2		8
188.0	N. Bolsa Pt	SM	3712.71	12224.43	1		111
189.0	0.5km N. Bean Hollow	SM	3713.81	12224.83	2		11
190.0	0.8km N. Bean Hollow	SM	3713.96	12224.91	1		71
191.0	1.0km N. Bean Hollow	SM	3714.11	12225.00	2		21
191.1	Pescadero Pt.	SM	3714.47	12225.14	1		6
192.0	0.2km N. Pescadero Pt.	SM	3714.74	12225.16	2		34
193.0	0.3km N. Pescadero Pt.	SM	3714.87	12225.13	2		24
193.1	?km N Pescadero Pt.	SM	3714.	12225.	1		5
194.0	Butano Creek Mouth	SM	3716.02	12224.82	2		54
194.1	?km N. Martins Beach	SM	3716.02	12224.	2		1
195.0	Eel Rock	SM	3724.48	12225.66	2		40
195.1	N. Eel Rock	SM	3724.80	12225.90	1		146
196.0	Miramontes Pt.	SM	3726.48	12226.66	2		47
196.1	?km N. Miramontes Pt.	SM	3726.95	12226.	2		33
197.0	Sail Rock, Pillar Pt.	SM	3729.49	12229.98	2		122
197.1	Sail Rock, Pillar Pt.	SM	3730.16	12230.15	1		100
198.0	1.0km N. Pillar Pt.	SM	3730.16	12230.15	2		125
198.1	N. Pillar Pt.	SM	3730.	12230.	2		25
199.0	1.5km N. Pillar Pt.	SM	3730.27	12230.27	1		131
200.0	Moss Beach (Seal Cove)	SM	3730.54	12230.83	1		58
200.1	?km S. Seal Cove	SM	3730.	12230.	2		24
201.0	Moss Beach (N. Seal Cove)	SM	3730.99	12230.94	2		68
201.1	?km S. Pt. San Pedro	SM	3735.	12231.	2		3
202.0	San Pedro Rock (South Side)	SM	3735.69	12231.22	3		58
202.1	Mussel Rock	SM	3739.00	12230.00	2		0
203.0	Gaudalupe Slough	SCL	3726.70	12202.14	4		67
204.0	Calaveras Pt.	ALA	3728.02	12202.99	4		14
205.0	Mowry Slough	ALA	3729.32	12201.98	4		328
206.0	Plummer Creek	ALA	3730.48	12205.2	4		41
207.0	Greco Island	SM	3731.05	12210.78	4		74
208.0	Corkscrew Slough	SM	3738.79	12212.88	4		17
209.0	Yerba Buena Island	SF	3748.43	12221.71	2		65
210.0	0.4km W. Blunt Pt.,Angel Isl.	MAR	3806.98	12226.69	2		18
210.8	Lighthouse Blunt Pt Rock	SF	3751.39	12025.16	2		13
211.0	Sausalito Small Craft Harbor	MAR	3752.30	12229.69	7		30
212.0	Strawberry Spit	MAR	3753.27	12229.89	1		97
213.0	Castro Rocks	CC	3756.00	12224.99	2		123
214.0	Tubbs Island	SON	3806.98	12226.69	4		8

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	SSUB2	MAX
215.0	Pt. Bonito (.6km N. on inside)	MAR	3749.29	12231.47	2		34
215.1	Pt. Bonita	MAR	3749.33	12231.	2		1
216.0	0.4km N. Tennessee Cove	MAR	3750.63	12233.30	2		5
216.1	Muir Beach	MAR	375 .	1223 .			1
217.0	Bolinas Lagoon	MAR	3754.82	12240.2	4		153
217.1	Bolinas Lagoon	MAR	3753.24	12241.81	5		65
218.0	Duxbury Reef	MAR	3753.29	12241.88	1		185
218.1	West end Duxbury Reef	MAR	3753.	12241.	1		24
219.0	Bolinas Pt.	MAR	3754.03	12243.51	1		25
219.1	Vicinity Bolinas Pt.	MAR	3754.74	12243.75	1		1
219.2	Vicinity Bolinas Pt.	MAR	3754.	12243.	1		1
219.3	Vicinity Bolinas Pt.	MAR	3754	12243.	1		4
220.0	Rocks at S. Edge Double Pt.	MAR	3756.58	12246.54	1		93
221.0	Double Pt. Beach	MAR	3756.50	12246.61	5		831
222.0	Beach .4km N. Double Pt.	MAR	3756.90	12247.69	5		11
223.0	Millers Pt.	MAR	3759.08	12248.64	2		3
224.0	Limantour Spit	MAR	3801.89	12255.34	4		509
225.0	Drakes Estero	MAR	3802.00	12255.78	4		726
226.0	1.7km W. Chimney Rock	MAR	3759.51	12258.83	2		66
226.1	?km W. Chimney Rock	MAR	3759.	12258.	5		21
226.2	?km W. Chimney Rock	MAR	3759.	12258.	2		72
226.3	?km W. Chimney Rock	MAR	3759.	12258.	2		12
227.0	1.8km W. Chimney Rock	MAR	3759.55	12259.03	2		34
228.0	1.9km W. Chimney Rock	MAR	3759.52	12259.28	2		29
229.0	2.1km W. Chimney Rock	MAR	3759.57	12259.17	2		0
230.0	2.5km W. Chimney Rock	MAR	3759.52	12259.62	2		124
231.0	2.7km W. Chimney Rock	MAR	3759.51	12259.79	5		155
232.0	3.6km W. Chimney Rock	MAR	3759.50	12300.02	5		90
232.1	3.1km W. Chimney Rock	MAR	3759.50	12300.02	5		28
232.2	3.0km W. Chimney Rock	MAR	3759.03	12300.03	5		70
232.3	3.3Km W. Chimney Rock	MAR	3759.55	12300.03	5		17
233.0	3.7km W. Chimney Rock	MAR	3759.57	12300.51	1		31
234.0	Mid Sea Lion Cove	MAR	3759.60	12300.58	2		13
235.0	West Sea Lion Cove	MAR	3759.70	12300.67	2		17
236.0	1.4km S. Elephant Rock	MAR	3810.23	12257.22	1		19
237.0	0.6km S. Elephant Rock	MAR	3810.69	12257.50	1		1
238.0	0.2km E. Elephant Rock	MAR	3810.80	12257.80	2		20
239.0	N. End Driftwood Beach	MAR	3812.36	12358.61	2		46
240.0	3.2km S. Bird Island	MAR	3813.30	12258.29	2		10
240.1	?km S. Bird Island	MAR	3818.	12258.	2		3
241.0	2.9km S. Bird Island	MAR	3812.50	12258.42	5		135
242.0	1.7km S. Bird Island	MAR	3813.05	12258.88	2		2
242.1	Bird Island	MAR	3813.	12258.	2		1
243.0	0.7km SE Bird Island	MAR	3713.43	12359.39	5		111
244.0	0.6km SE Bird Island	MAR	3813.67	12259.20	1		179
244.1	?km SE Bird Island	MAR	3813.	12259.	2		1

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	SUBS2	MAX
245.0	Bird Island	MAR	3813.77	12259.57	2		419
245.1	SW Tomales Bluff	MAR	3814.	12259.	3		1
246.0	0.6km S. Tomales Bluff	MAR	3814.15	12259.84	3		17
247.0	Tomales Bluff	MAR	3814.47	12259.61	2		5
247.1	E. Side Tomales Pt.	MAR	3813.40	12258.60	2		8
248.0	.5km N. Toms Pt., Tomales Bay	MAR	3813.00	12257.26	4		431
248.1	Tomales Bay	MAR	38 .	122 .	4		72
248.5	E. Lower Pierce Ranch	MAR	3813.21	12258.37	4		30
249.0	Hog Island (E. Spit)	MAR	3811.83	12256.38	4		236
249.1	S.E. Hog Island	MAR	3811.60	12256.20	2		1
249.5	1.0km. S. Estero Americano	MAR	3817.49	12259.2	2		22
250.0	Pinnacle Rock Area	MAR	3818.	12301.	2		3
251.0	Bodega Rock	SON	3817.75	12302.82	2		115
252.0	New Bodega Head	SON	3818.16	12303.16	1		12
253.0	Mussel Pt.	SON	3819.32	12304.63	1		12
254.0	Arched Rock S. Carmet	SON	3822.20	12304.40	1		9
255.0	0.7km S. Duncans Pt.	SON	3823.39	12305.35	2		18
255.1	Duncans Pt.	SON	3823.	123 .	2		16
256.0	0.3km E. Duncans Pt.(Cove)	SON	3823.56	12305.61	2		8
257.0	Wrights Beach	SON	3824.11	12306.16	2		47
257.8	Furlong Gulch	SON	3824.80	12306.20	2		3
258.0	Furlong Gulch Area	SON	3825.26	12206.87	2		2
259.0	0.9km N. Shell Beach	SON	3825.28	12306.84	2		1
259.1	N. of Shell Beach	SON	3825.	12306.	2		1
260.0	1.2km N. Shell Beach	SON	3825.39	12306.90	2		2
260.1	Near Gull Rock	SON	3825.	12306.	2		1
261.0	Penny Island Russian River	SON	3826.75	12306.83	6		3
261.1	Russian River	SON	3827.50	12306.	6		10
261.2	Russian River	SON	3826.30	12305.80	6		18
262.0	Russian River Spits	SON	3827.02	12307.64	4		258
263.0	1.3km N. Russian River	SON	3827.34	12308.51	2		31
263.1	1.4km N. Russian River	SON	3827.22	12208.37	2		21
263.2	1.5km N. Russian River	SON	3827.22	12308.37	2		15
264.0	1.6km N. Russian River	SON	3827.32	12208.88	2		26
264.1	1.6 km N Russian River	SON	3827.30	12308.50	2		26
265.0	2.0km N. Russian River	SON	3827.61	12308.90	2		10
265.1	?km N. Russian River	SON	3828.39	12310.	2		5
266.0	1.6km N. Russian Gulch	SON	3827.60	12310.18	2		13
267.0	1.7km N. Russian Gulch	SON	3828.59	12310.26	2		5
268.0	1.9km N. Russian Gulch	SON	3828.63	12310.32	1		37
268.1	?km N. Russian Gulch	SON	3828.	12310.	2		4
269.0	0.3km S. Meyer Gulch	SON	3828.96	12310.87	2		13
270.0	1.8km S.Fort Ross Reef	SON	3929.75	12312.46	2		9
270.1	?km S. Fort Ross Reef	SON	3929.	12312.	2		3
270.2	?km S. Fort Ross Reef	SON	3929.	12312.	2		1
271.0	0.3km S. Fort Ross Gulch	SON	3830.10	12313.59	2		28

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	SUBS2	MAX
272.0	Fort Ross Reef	SON	3830.06	12313.92	2		14
272.1	?km N. Fort Ross Reef	SON	3830.	12313.	2		1
273.0	0.2km N. Fort Ross Reef	SON	3830.23	12313.85	2		70
273.1	N. of Fort Ross Reef	SON	3830.	12313.	2		1
274.0	Fort Ross Cove	SON	3830.68	12314.63	2		33
274.1	N. Side Fort Ross Cove	SON	3830.	12314.	2		17
275.0	Northwest Cape (0.1km S.)	SON	3830.70	12315.17	2		20
276.0	Northwest Cape	SON	3830.72	12315.27	2		21
276.1	Northwest Cape	SON	3830.70	12315.17	2		29
277.0	0.3km N. Northwest Cape	SON	3831.87	12315.22	3		51
277.1	?km N. Northwest Cape	SON	3831.	12315.	2		3
278.0	0.9km N. Northwest Cape	SON	3831.12	12315.54	1		6
279.0	0.2km S. Windermere Pt.	SON	3831.42	12316.01	1		1
280.0	1.0km N. Windermere Pt.	SON	3831.55	12316.09	2		9
281.0	0.5km N. Timber Cove Gr.	SON	3831.84	12316.5	2		57
282.0	0.9km N. Timber Cove Gr.	SON	3832.15	12316.91	3	2	50
282.1	South End Stillwater Cove	SON	3832.	12317.	2		7
283.0	Stillwater Cove (inside)	SON	3832.78	12317.96	2		10
283.1	0.5km N. Stillwater Cove	SON	3832.80	12317.90	2		1
283.2	Gerstle Cove	SON	3833.50	12319.00	2	3	26
284.0	Salt Pt.	SON	3833.90	12319.98	2		29
284.1	Salt Pt. Area	SON	3833.	12319.	2		5
284.2	Salt Pt. Area	SON	38 .	12 .	2		3
284.3	Salt Pt. Area	SON	38 .	12 .	2		1
285.0	0.3km N. Salt Pt.	SON	3834.	12320.	2		57
285.1	Salt Pt. Area	SON	3834.	12320.	2		16
285.2	Salt Pt. Area	SON	3834.	12320.	1		10
285.4	Salt Point Area	SON	3834.	12320.	2		4
286.0	0.8km N. Salt Pt.	SON	3834.23	12320.26	2		6
286.5	N. of Salt Point	SON	3834.	12320.	3		3
287.0	0.3km S. Chinese Gulch	SON	3835.21	12320.54	2		67
287.1	Chinese Gulch	SON	3835.80	12321.30	3		3
287.2	?OFR N. Chinese Gulch	SON	3834.	12320.	2		1
287.3	Fisk Mill Cove	SON	3835.76	12320.86	2		2
288.0	.7kmN. Cannon Gulch-Fisk Mill	SON	3835.82	12321.47	2		10
289.0	0.7km S. Horseshoe Pt.	SON	3836.14	12321.94	2		10
290.0	0.7km N. Horseshoe Pt.	SON	3836.76	12322.02	2		34
291.0	0.7km N. Horseshoe Cove	SON	3836.95	12322.42	1		14
291.1	Horseshoe Cove Area	SON	3836.85	12322.42	2		1
292.0	0.5km S. Rocky Pt.	SON	3837.62	12323.15	3		1
292.1	Sandy Point	SON	3898.	12323.	1		2
293.0	Sandy Pt.	SON	3838.65	12323.98	3		18
293.5	Sandy Point	SON	3898.60	12323.80	2	1	9
294.0	0.7km S. Stewarts Pt.	SON	3838.98	12324.15	2		26
294.1	Stewarts Pt. Area	SON	3838.	12424.	2		5
295.0	0.2km S. Stewarts Pt.	SON	3839.19	12324.39	3		40

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	SUBS2	MAX
296.0	Stewarts Pt. Island	SON	3839.28	12324.50	3		115
296.1	Stewarts Point Island	SON	3839.	12324.	2		2
297.0	0.6km N. Stewarts Pt.	SON	3839.58	12324.54	2		4
297.1	Stewarts Pt. Area	SON	3839.	12324.	1		35
298.0	1.0km S. Black Pt.	SON	3840.34	12325.07	2		26
298.1	Black Pt. Area	SON	3840.56	12325.60	3		48
298.2	?km S.E. Black Pt.	SON	3840.	12325.	1		4
299.0	0.4km N. Black Pt.	SON	3840.87	12326.05	2		36
299.1	Black Pt. Area	SON	3841.60	12326.40	2		29
300.0	2.8km N. Black Pt.	SON	3842.06	12327.08	2		2
300.1	N of Black Point	SON	3842.	12327.	2		1
301.0	3.8km N. Black Pt.	SON	3842.48	12327.16	2		5
301.1	Diamond Rock	SON	3842.	12327.	2		23
302.0	5.2km N. Black Pt.	SON	3842.92	12327.63	2		125
303.0	6.0km N. Black Pt.	SON	3843.27	12328.21	2		17
304.0	6.2km N. Black Pt.	SON	3843.30	12328.27	2		39
305.0	6.7km N. Black Pt.	SON	3843.46	12328.64	2		53
306.0	7.1km N. Black Pt.	SON	3843.58	12328.92	2		1
307.0	7.3km N. Black Pt.	SON	3843.46	12329.22	2		164
308.0	7.4km N. Black Pt.	SON	3843.71	12329.02	2		74
309.0	7.7km N. Black Pt.	SON	3843.74	12329.09	1		45
310.0	1.3km S. Del Mar Pt.	SON	3844.25	12329.90	2		3
310.1	?km S. Del Mar Landing	SON	3844.	12330.	3		1
311.0	Del Mar Pt.	SON	3844.39	12330.93	1		18
312.0	1.3km N. Del Mar Pt.	SON	3844.39	12330.93	1		21
312.1	Del Mar Pt. Area	SON	38 .	12 .	1		27
313.0	Gualala Pt.	SON	3845.12	12331.60	1		79
313.1	N of Gualala Point	SON	3845.	12331.	2		9
314.0	Robinson Reef	MEN	3846.04	12332.74	2		4
315.0	Bourns Rock	MEN	3846.63	12333.49	2		70
315.1	?km N. Bourns Rk.	MEN	3836.	12333.	1		4
315.2	Bourns Landing	MEN	3846.74	12333.21	2		9
316.0	Fish Rocks	MEN	3847.86	12335.44	5		35
316.1	Onshore Near Fish Rocks	MEN	3848.34	12336.36	2		3
317.0	Havens Neck-.3km N.Inside Cove	MEN	3848.62	12335.87	2		13
317.1	Vicinity Havens Neck	MEN	3849.	12336.	2		3
318.0	1.2km N. Havens Neck	MEN	3849.08	12336.43	2		28
318.1	Scholl Rock	MEN	3849.	12336.	2		25
319.0	0.6km S. Steen's Landing	MEN	3849.43	12336.74	2		7
319.1	?km N. Steen'sLanding	MEN	3849.	12336.	3		4
320.0	Morrison Gulch	MEN	3850.38	12337.99	3		69
321.0	Iverson's Landing (S. side)	MEN	3850.60	12338.51	2		32
322.0	Iverson's Landing (N. side)	MEN	3850.72	12338.66	2		0
323.0	Saunders Reef Area (inside)	MEN	3852.30	12339.80	2	1	28
324.0	0.8km N. Galloway Creek	MEN	3853.18	12341.14	1	1	53
324.1	1.2 Km S. Arena Cove	MEN	3854.	12342.	2	2	2

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	SUBS2	MAX
324.5	S. Arena Cove	MEN	3853.20	12340.90	1		9
325.0	0.8km S. Arena Cove	MEN	3854.24	12342.40	1		27
325.1	North Arena Cove	MEN	3854.24	12342.40	1		35
325.2	Sea Lion Rocks	MEN	3856.61	12344.09	2		15
326.0	Pt. Arena	MEN	3857.36	12343.73	2		145
327.0	0.4km N. Mallo Pass Cr.	MEN	3901.98	12341.41	1		48
327.1	0.7km N. Mallo Pass Cr.	MEN	3901.98	12341.77	2		57
328.0	0.9km N. Mallo Pass Cr.	MEN	3902.32	12341.97	2		49
329.0	1.0km N. Mallo Pass Cr.	MEN	3902.91	12342.60	5		57
329.1	Bridgeport Landing	MEN	3902.93	12341.75	2		2
329.5	N. Bridgeport Landing	MEN	3904.10	12342.20	2		1
330.0	0.6km S. S. Elk Cr.	MEN	3905.75	12342.84	2		42
331.0	Elk Creek	MEN	3906.	12342.	2		1
331.1	Big Rock	MEN	3806.42	12342.99	2		11
332.0	Cuffey's Pt.	MEN	3904.44	12344.49	2		176
332.1	N. Cuffey's Pt.	MEN	3909.58	12344.43	3		14
332.5	Taylor Rock	MEN	3909.60	12344.35	2		7
333.0	Devil's Basin	MEN	3910.09	12344.87	2		60
334.0	0.3km S. Saddle Pt.	MEN	3910.39	12345.17	2		73
335.0	0.2km S. Saddle Pt.	MEN	3910.53	12345.06	2		36
335.1	Vic. Arch of the Navarro	MEN	3911.	12346.	2		5
335.2	N of Saddle Point	MEN	3910.84	12345.36	3		1
336.0	0.4km S. Salmon Pt.	MEN	3911.64	12346.23	2		19
336.05	Albion Head	MEN	3914.	12346.	2		11
336.1	Albion Head	MEN	3914.	12346.	2		10
336.2	?km N. Whitesboro Cove	MEN	3914.	12346.	3		1
337.0	1.8km N. Albion Head	MEN	3914.65	12347.02	2		37
337.1	?km N. Albion Head	MEN	3914.	12347.	2		2
338.0	0.2km N. Stillwell Pt.	MEN	3915.12	12347.22	2		74
338.1	Buckhorn Cove	MEN	3915.	12347.	2		1
338.2	Van Damme Beach	MEN	3915.80	12347.80	2		13
339.0	Van Damme S. B.	MEN	3916.18	12347.66	2		38
339.1	Van Damme S.B.	MEN	3916.	12347.	2		17
340.0	0.7km N. Van Damme S.B.	MEN	3916.28	12348.01	3		18
340.05	N. Van Damme Beach	MEN	3916.	12348.	2		1
340.1	N of Van Damme Beach	MEN	3916.	12348.	2		16
341.0	1.5km N. Van Damme S.B.	MEN	3917.27	12348.16	2		98
342.0	Near Goat Isl. Mendocino City	MEN	3918.34	12348.70	2		32
342.1	Goat Island Area	MEN	3918.40	12348.90	3	2	25
343.0	0.6km N. Goat Island	MEN	3918.67	12348.59	2		34
343.1	?km N. Goat IS.	MEN	3918.	12348.	2		20
344.0	1.2km N. Russian Gulch	MEN	3918.90	12349.12	2		22
344.1	Pt. Cabrillo Light Station	MEN	3920.2	12349.	2		15
345.0	Point Cabrillo	MEN	3921.02	12349.69	2		31
345.05	1.2Km N. Russian Gulch	MEN	3921.65	12349.70	2		13
345.1	Casper Anchorage	MEN	3921.55	12349.76	2		24

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	SUBS2	MAX
345.2	Casper Anchorage	MEN	3921.70	12349.80	3	2	25
345.3	Casper Point	MEN	3921.	12349	3		21
346.0	Casper Anchorage Area	MEN	3921.	12349.	2		41
347.0	S. Mitchell Cr.	MEN	3923.00	12349.40	2		21
348.0	Soldier Pt. Area	MEN	3926.	12349.	2		43
349.0	.7kmN.Soldier Pt.Ft.Bragg Area	MEN	3926.73	12349.42	2		51
349.1	0.9km S. Pudding Cr.	MEN	3927.16	12348.64	1		16
350.0	1.8km N. Pudding Cr.	MEN	3927.61	12348.56	2		27
351.0	0.8km S. Laguna Pt.	MEN	3928.30	12348.60	2		18
352.0	Laguna Pt.	MEN	3929.28	12348.55	1		183
352.1	N Laguna Point	MEN	3929.83	12347.94	2		39
352.2	Abalobadiah Creek	MEN	3933.87	12346.35	2		26
353.0	0.3km N. Kibesillah Rock	MEN	3934.71	12346.93	2		55
354.0	Bruhel Pt.	MEN	3936.27	12347.36	5	2	46
355.0	Bell Pt.	MEN	3937.67	12347.25	2		9
355.1	?km N. Bell Pt.	MEN	3937.	12347.	2		4
356.0	Cape Vizcaino	MEN	3943.66	12349.81	2		67
356.1	Cape Vizcaino Area	MEN	3943.50	12349.95	5		100
357.0	0.4km N. Cottoneva Cr.	MEN	3944.06	12350.11	2		14
358.0	Williams Pt.	MEN	3945.	12450.	1		25
359.0	0.3km N. Soldier Frank Pt.	MEN	3945.55	12450.54	2		14
359.1	?km N. Sea Lion Rk.	MEN	3945.	12450.	2		1
360.0	0.5km S. Anderson Gulch	MEN	3950.91	12453.45	5		58
361.0	0.3km S. Anderson Gulch	MEN	3951.01	12453.21	5		186
362.0	0.3km N. Anderson Gulch	MEN	3951.16	12453.44	5		239
363.0	Northpoint Cove	MEN	3951.18	12453.79	5		839
364.0	0.6km N. Mistake Pt.	MEN	3951.85	12454.41	5		13
365.0	Jackass Creek Area	MEN	3953.92	12455.74	5		154
366.0	Seal Rock 1.5km S. Bear Harbor	MEN	3953.97	12455.96	2		240
366.1	Seal Rock Area	MEN	39	124	5		142
367.0	Pt. No Pass	MEN	3958.	12459.	2		10
367.1	Point Delgaela	MEN	4000.98	12404.52	2		21
367.2	Point Delgada	H	4001.13	12404.54	2		23
368.0	1.4km N. Pt. Delgada	H	4001.50	12404.45	2		43
368.1	3.6km. S.E. Miller Flat	H	4006.50	12402.45	2		33
369.0	5.0km N. Big Flat Creek	H	4009.27	12413.41	2		13
369.1	Reynolds Rk.	H	40	124	2		1
370.0	Sea Lion Gulch	H	4014.11	12420.46	2		3
371.0	1.7km S. Punta Gorda	H	4014.20	12420.60	2		25
372.0	1.3km S. Punta Gorda	H	4014.	12421.	2		3
372.1	Mattloe Beach	H	4016.16	12422.44	1		16
373.0	Hair Seal Rock	H	4019.47	12421.32	2		206
373.1	0.5km N. Hair Seal Rock	H	4020.00	12421.40	2		34
374.0	1.6km N. Hair Seal Rock	H	4019.89	12421.39	2		43
375.0	2.2km N. Hair Seal Rock	H	4020.18	12421.74	1		10
376.0	2.7km N. Hair Seal Rock	H	4020.	12421.74	1		4

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	SUBS2	MAX
377.0	1.7km S. Sugarloaf Rock	H	4025.	12424.	2		4
378.0	0.4km S. Sugarloaf Rock	H	4026.12	12424.56	2		5
378.1	?km S. Sugarloaf Rock	H	4026.	12424.	1		2
379.0	0.2km S. Sugarloaf Rock	H	4026.24	12424.66	2		4
380.0	0.3km S. Sugarloaf Rock	H	4026.48	12424.69	2		15
380.1	Vicinity Cape Mendocino	H	4026.	12424.	2		4
380.2	N Cape Mendocino	H	4026.82	12424.98	2		2
381.0	False Cape	H	4030.12	12423.59	2		73
381.1	Cockrobin Island	H	4030.	12418.	5		441
381.2	?km S. Cockrobin Island	H	40 .	124 .	5		81
381.3	?km. N. False Cape	H	4030.	12423.	2		15
382.0	Eel River Spit	H	4038.14	12418.99	4		1060
383.0	S. Humboldt Bay	H	40 .	124 .	4		830
384.0	Daby Island	H	4048.68	12408.97	4		518
385.0	N. Humboldt Bay	H	4050.30	12406.5o	4		170
386.0	Luffenholtz Cove	H	4102.44	12407.20	2		9
386.1	Vicinity Tepona Pt.	H	4102.	12407.	2		1
387.0	Cap Rock	H	4102.65	12407.51	2		17
388.0	Tower Rock	H	4103.10	12407.80	1		39
389.0	Seal Rock Shoals	H	4103.04	12407.96	22		31
390.0	Jamieson Shoal	H	4103.25	12408.14	2		79
390.1	Vicinity Trinidad Head	H	4103.	12408.	2		14
391.0	Dome Rock	H	4103.39	12408.43	2		43
392.0	Lighthouse Shoals	H	4103.40	12408.63	2		19
393.0	Marine Lab Shoals	H	4103.52	12409.45	2		93
394.0	Flatiron Shoals	H	4103.60	12409.61	2		22
395.0	Myer's Cove	H	4104.29	12409.46	2		36
395.1	N. Meyer's Cove	H			2		1
396.0	Bench Cove	H	4105.36	12409.32	1		23
396.1	Vicinity Bench Cove	H	4105.	12409.	1		16
397.0	Seal Rock	H	4105.90	12409.56	2		12
398.0	Seagull Rock	H	4107.45	12409.72	2		43
398.1	Vicinity Seagull Rock	H			2		6
399.0	Midway Rock	H	4107.48	12409.72	2		69
400.0	Close Rock	H	4107.51	12409.56	1		67
401.0	Flat Top Rock	H	4107.52	12409.84	2		24
402.0	Little Gibralter	H	4107.58	12409.72	2		15
403.0	Spearhead	H	4107.63	12409.88	1		27
404.0	Palmers Pt.	H	4107.75	12409.84	1		79
405.0	Cannonball Beach	H	4107.88	12409.80	1		30
405.05	Abalone Point	H	4107.50	12410.30	2		3
405.1	Patrick's Point Vic.	H			2		1
406.0	Sharp Pt.	H	4114.18	12406.48	3		55
407.0	Redwood Creek Spits	H	4117.55	12405.34	4		9
407.1	Mussel Point	H	4118.78	12405.85	2		13
408.0	Major Creek	H	4119.74	12405.01	2		10

SITE	LOCATION	COUNTY	LAT	LONG	SUBST	SUBS2	MAX
409.0	Klamath R. Spits	DN	4132.71	12404.75	4		341
410.0	N. Klamath Rock	DN	4133.16	12405.41	2		48
411.0	Saddle Rocks	DN	4133.68	12405.76	2		20
412.0	Klamath Cove	DN	4133.98	12405.86	2		56
413.0	Two Rocks	DN	4134.35	12406.09	2		96
413.1	Midway Point	DN	4140.	1240	2		1
414.0	Scat Beach	DN	4140.23	12408.22	5		516
415.0	Millers Point	DN	4140.35	12408.45	1		100
416.0	Mates Point	DN	4140.97	12408.41	3		61
417.0	Battery Point	DN	4144.81	12412.34	1		3
418.0	Castle Rock	DN	4145.68	12414.55	2		542
419.0	Pt. St. George	DN	4146.00	12415.53	2		3
420.0	Mouth of Smith River	DN	4156.37	12411.82	4		23
421.0	NW Seal Rock	DN	41 .	124 .	2		9
422.0	Farallon Islands	FIs	3742.	123 .	2		84